

TEST REPORT

Report No.: BCTC2009000378E

Applicant: Argus Technology (Shenzhen) Co., Ltd.

Product Name: Insight mini

Model/Type Ref.: A-P2020-0303

Tested Date: Sep. 05, 2020 to Sep. 29, 2020

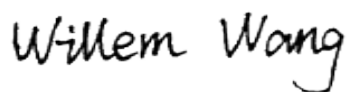
Issued Date: Sep. 30, 2020

Shenzhen BCTC Testing Co., Ltd.

FCC ID: 2AK3T-P2020

Product Name: Insight mini
Trademark: N/A
Model/Type Ref.: A-P2020-0303
Insight Mini
Prepared For: Argus Technology (Shenzhen) Co., Ltd.
Address: NO.5-6A, ZhongYan Business Building, Fuyong street,
FuHai Road, Baoan, Shenzhen, China
Manufacturer: Argus Technology (Shenzhen) Co., Ltd.
Address: NO.5-6A, ZhongYan Business Building, Fuyong street,
FuHai Road, Baoan, Shenzhen, China
Prepared By: Shenzhen BCTC Testing Co., Ltd.
Address: 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st
Road, Qiaotou Community, Fuyong Street, Bao'an District,
Shenzhen, China
Sample Received Date: Sep. 05, 2020
Sample tested Date: Sep. 05, 2020 to Sep. 29, 2020
Issue Date: Sep. 30, 2020
Report No.: BCTC2009000378E
FCC Part15 15.407
ANSI C63.10-2013
Test Standards KDB 662911 D01 v02r01
KDB 789033 D02 v02r01
Test Results PASS

Compiled by:



Willem Wang

Reviewed by:



Eric Yang

Approved by:


Zero Zhou/Manager

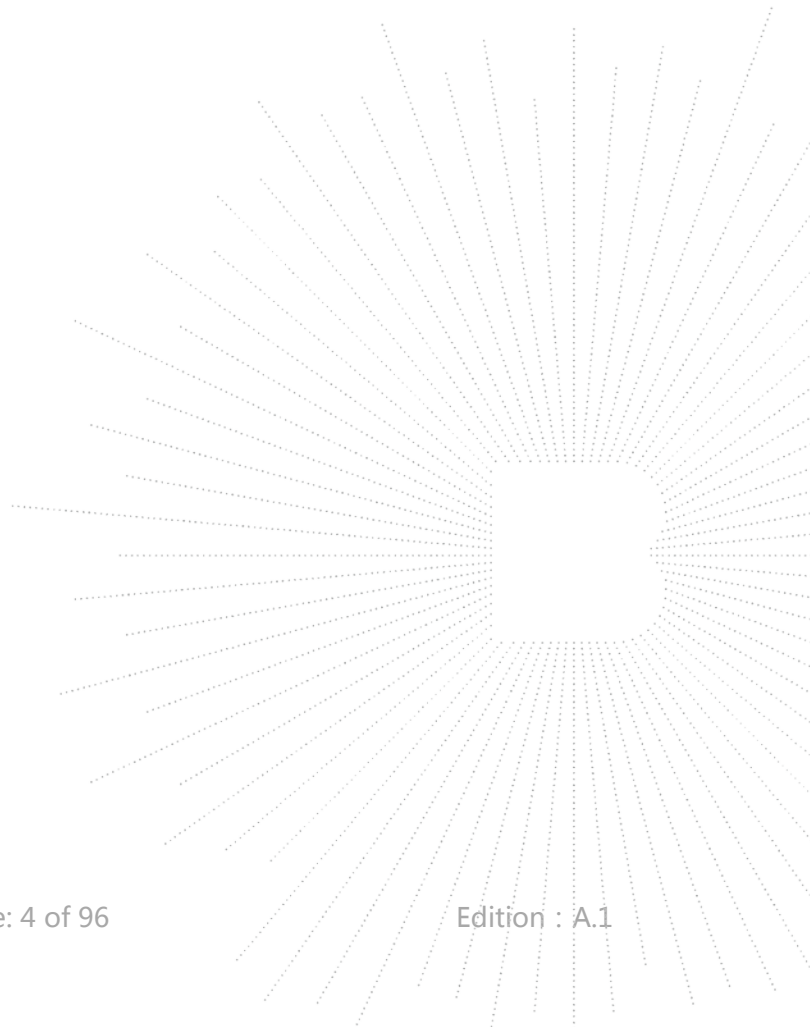
The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

TABLE OF CONTENT

Test Report Declaration	Page
1. VERSION	5
2. TEST SUMMARY	6
3. MEASUREMENT UNCERTAINTY	7
4. PRODUCT INFORMATION AND TEST SETUP	8
4.1 Product Information	8
4.2 Test Setup Configuration	9
4.3 Support Equipment	9
4.4 Channel List	10
4.5 Test Mode	10
4.6 table of parameters of text software setting	11
4.7 Antenna	12
5. TEST FACILITY AND TEST INSTRUMENT USED	13
5.1 Test Facility	13
5.2 Test Instrument Used	13
6. CONDUCTED EMISSIONS	15
6.1 Block Diagram Of Test Setup	15
6.2 Limit	15
6.3 Test procedure	15
6.4 EUT operating Conditions	15
6.5 Test Result	16
7. RADIATED EMISSIONS	18
7.1 Block Diagram Of Test Setup	18
7.2 Limit	19
7.3 Test procedure	20
7.4 EUT operating Conditions	21
7.5 Test Result	22
8. POWER SPECTRAL DENSITY TEST	31
8.1 Block Diagram Of Test Setup	31
8.2 Limit	31
8.3 Test procedure	32
8.4 EUT operating Conditions	32
8.5 Test Result	33
9. 26DB & 6DB & 99% EMISSION BANDWIDTH	39
9.1 Block Diagram Of Test Setup	39
9.2 Limit	39
9.3 Test procedure	39
9.4 EUT operating Conditions	40
9.5 Test Result	40
10. MAXIMUM CONDUCTED OUTPUT POWER	52
10.1 Block Diagram Of Test Setup	52
10.2 Limit	52

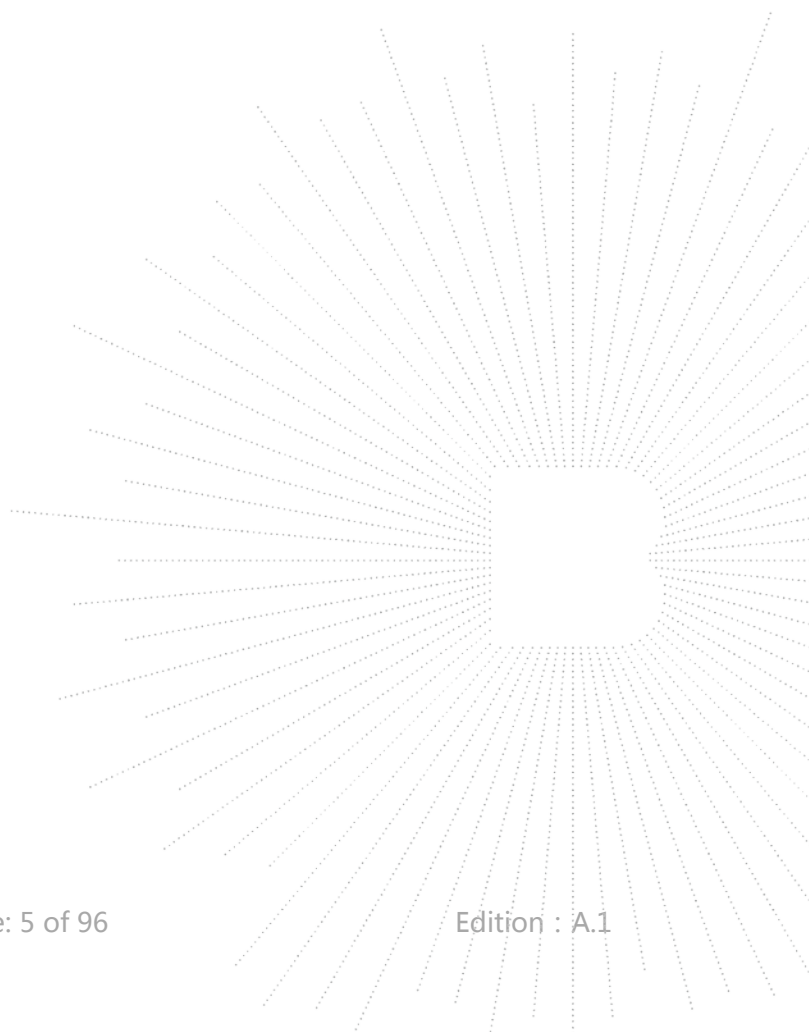
10.3	Test procedure	52
10.4	EUT operating Conditions	53
10.5	Test Result	54
11.	OUT OF BAND EMISSIONS	56
11.1	Block Diagram Of Test Setup	56
11.2	Limit	56
11.3	Test procedure	56
11.4	EUT operating Conditions	56
11.5	Test Result	57
12.	SPURIOUS RF CONDUCTED EMISSIONS	74
12.1	Block Diagram Of Test Setup	74
12.2	Limit	74
12.3	Test procedure	74
12.4	Test Result	75
13.	FREQUENCY STABILITY MEASUREMENT	84
13.1	Block Diagram Of Test Setup	84
13.2	Limit	84
13.3	Test procedure	84
13.4	Test Result	85
14.	ANTENNA REQUIREMENT	91
14.1	Limit	91
14.2	Test Result	91
15.	EUT PHOTOGRAPHS	92
16.	EUT TEST SETUP PHOTOGRAPHS	94

(Note: N/A means not applicable)



1. VERSION

Report No.	Issue Date	Description	Approved
BCTC2009000378E	Sep. 30, 2020	Original	Valid



2. TEST SUMMARY

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No	Results
1	Spurious Radiated Emissions	15.209(a), 15.407 (b)(1) 15.407 (b)(4) 15.407 (b)(8)	PASS
2	Conducted Emission	15.207	PASS
3	26 dB and 99% Emission Bandwidth	15.407 (a)(12) 15.1049	PASS
4	Minimum 6 dB bandwidth	15.407(e)	PASS
5	Maximum Conducted Output Power	15.407 (a)(1) 15.407 (a)(3)	PASS
6	Band Edge	2.1051, 15.407(b)(1) 15.407(b)(4)	PASS
7	Power Spectral Density	15.407 (a)(1) 15.407 (a)(3)	PASS
8	Spurious Emissions at Antenna Terminals	2.1051, 15.407(b)	PASS
9	Antenna Requirement	15.203	PASS

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
3	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
4	Conducted Adjacent channel power	U=1.38dB
5	Conducted output power uncertainty Above 1G	U=1.576dB
6	Conducted output power uncertainty below 1G	U=1.28dB
7	humidity uncertainty	U=5.3%
8	Temperature uncertainty	U=0.59°C

4. PRODUCT INFORMATION AND TEST SETUP

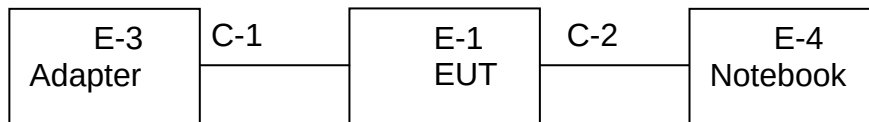
4.1 Product Information

Model/Type Ref.:	A-P2020-0303 Insight Mini
Model differences:	All the model are the same circuit and RF module, except model names.
Hardware Version:	N/A
Software Version:	N/A
IEEE 802.11 WLAN Mode Supported	802.11a/n(20MHz channel bandwidth) 802.11n(40MHz channel bandwidth)
Operation Frequency:	5180-5240MHz for 802.11a/n(HT20); 5190-5230MHz for 802.11n(HT40); 5745-5825 MHz for 802.11a/n(HT20); 5755-5795 MHz for 802.11n(HT40);
Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15;
Type of Modulation:	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n;
Number Of Channel	4 channels for 802.11a/n20 in the 5180-5240MHz band ; 2 channels for 802.11 n40 in the 5190-5230MHz band ; 5 channels for 802.11a/n20 in the 5745-5825MHz band ; 2 channels for 802.11 n40 in the 5755-5795MHz band ;
Antenna installation:	External antenna
Antenna Gain:	Antenna A:5dBi Antenna B: 5dBi
Ratings:	DC 12V

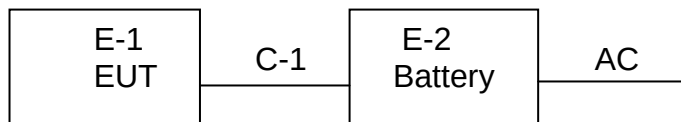
4.2 Test Setup Configuration

See test photographs attached in *EUT TEST SETUP PHOTOGRAPHS* for the actual connections between Product and support equipment.

Conducted Emission



Radiated Spurious Emission



4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
E-1	Insight mini	N/A	A-P2020-0303	N/A	EUT	N/A
E-2	Battery	N/A	N/A	N/A	Auxiliary	DC 12V
E-3	Adapter	N/A	BCTC001	N/A	Auxiliary	DC 12V
E-4	Notebook	lenovo	Thinkpad S2	N/A	Auxiliary	N/A

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.8M	DC cable unshielded
C-2	NO	NO	0.8M	Ethernet cable unshielded

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

802.11a/n(20MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220	40	5200	48	5240
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

802.11n (40MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230	-	-	-	-
151	5755	159	5795	-	-	-	-

4.5 Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165
Mode 2	802.11n40 CH38/ CH 46 802.11n40 CH 151 / CH 159
Mode 3	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165
Mode 4	Link Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n20 CH149/ CH157/ CH 165
Mode 2	802.11n40 CH38/ CH 46 802.11n40 CH 151 / CH 159
Mode 3	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165

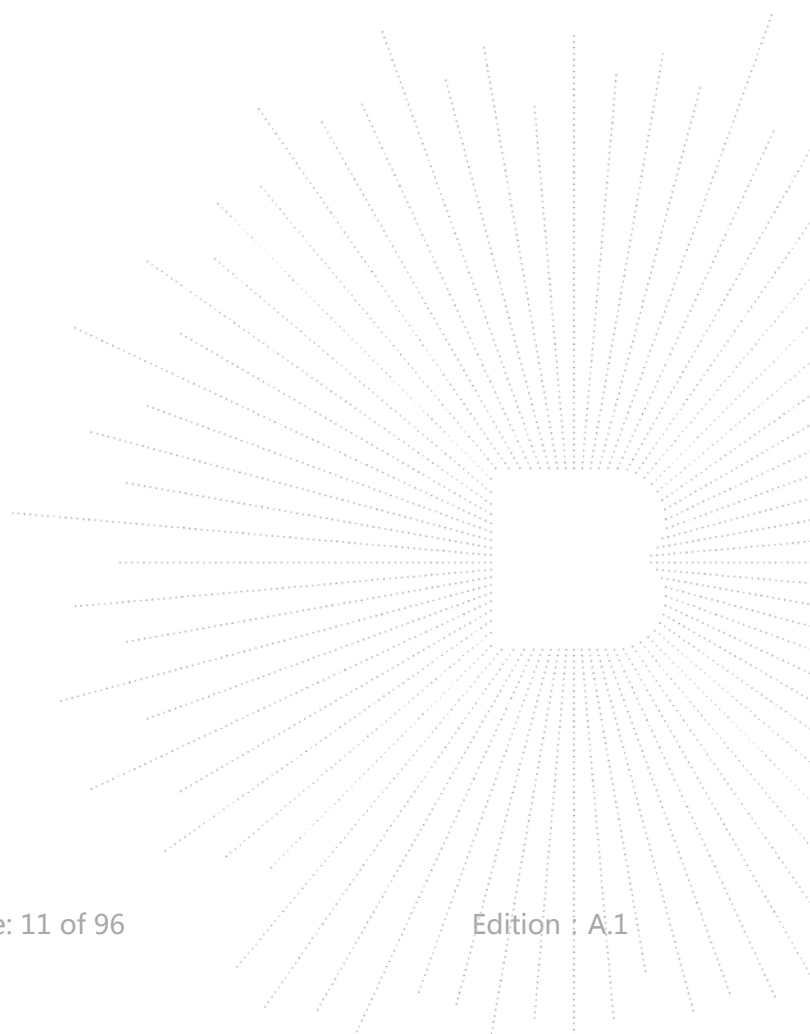
Note:

- (1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.

4.6 table of parameters of text software setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters

Test software Version	FCC_TOOL		
Parameters	DEF	DEF	DEF



4.7 Antenna

Antenna A gain: 5dBi, Antenna B gain: 5dBi,

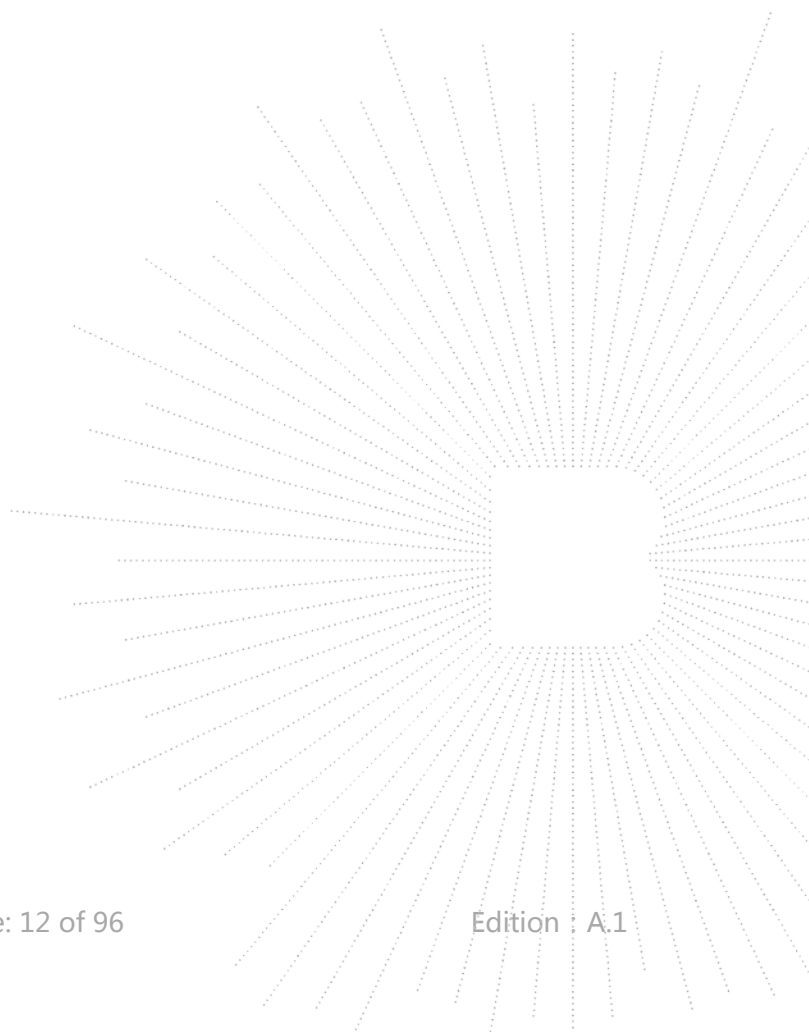
For power spectral density(PSD) measurements:

For MIMO mode for 802.11n , Directional gain= $[10\log(G_A + G_B)]$ dBi =8.01dBi

For power measurements:

For MIMO mode for 802.11n The Array gain=0 dB for $N_{ANT} \leq 4$,
So the directional gain for Power measurements is 5dBi

Antenna	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
A	N/A	N/A	External antenna	5	
B	N/A	N/A	External antenna	5	



5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address: 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

FCC Test Firm Registration Number: 712850

IC Registered No.: 23583

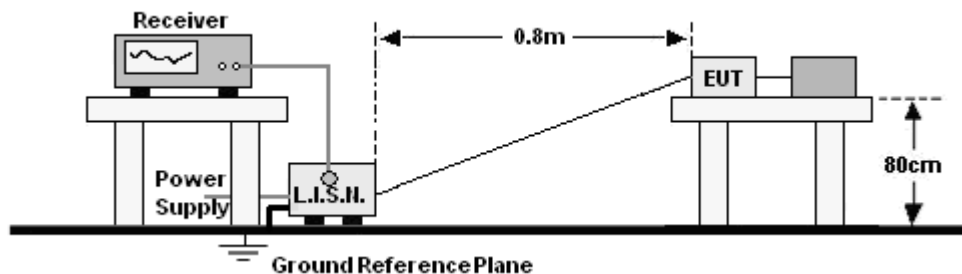
5.2 Test Instrument Used

Conducted emissions Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021
LISN	R&S	ENV216	101375	Jun. 04, 2020	Jun. 03, 2021
ISN	HPX	ISN T800	S1509001	Jun. 04, 2020	Jun. 03, 2021
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

Radiated emissions Test (966 chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	Jun. 06, 2020	Jun. 05, 2023
Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021
Receiver	R&S	ESRP	101154	Jun. 08, 2020	Jun. 07, 2021
Amplifier	Schwarzbeck	BBV9718	9718-309	Jun. 04, 2020	Jun. 03, 2021
Amplifier	Schwarzbeck	BBV9744	9744-0037	Jun. 04, 2020	Jun. 03, 2021
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163-942	Jun. 08, 2020	Jun. 07, 2021
Horn Antenna	SCHWARZBEC K	BBHA9120 D	1201	Jun. 10, 2020	Jun. 09, 2021
Horn Antenna (18GHz-40GHz)	SCHWARZBE CK	BBHA9170	822	Jun. 10, 2020	Jun. 09, 2021
Amplifier (18GHz-40GHz)	MITEQ	TTA1840-3 5-HG	2034381	Jun. 08, 2020	Jun. 07, 2021
Loop Antenna (9kHz-30MHz)	SCHWARZBE CK	FMZB1519 B	014	Jun. 08, 2020	Jun. 07, 2021
RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30M Hz	B1702988- 0008	Jun. 08, 2020	Jun. 07, 2021
RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1G Hz	1486150	Jun. 08, 2020	Jun. 07, 2021
RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40G Hz	1607106	Jun. 08, 2020	Jun. 07, 2021
Power Metter	Keysight	E4419B	\	Jun. 08, 2020	Jun. 07, 2021
Power Sensor (AV)	Keysight	E9 300A	\	Jun. 08, 2020	Jun. 07, 2021
Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY491000 60	Jun. 04, 2020	Jun. 03, 2021
Spectrum Analyzer 9kHz-40GHz	Agilent	FSP40	100363	Jun. 13, 2020	Jun. 12, 2021
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

6. CONDUCTED EMISSIONS

6.1 Block Diagram Of Test Setup



6.2 Limit

FREQUENCY (MHz)	Limit (dBuV)	
	Quas-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Notes:
1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

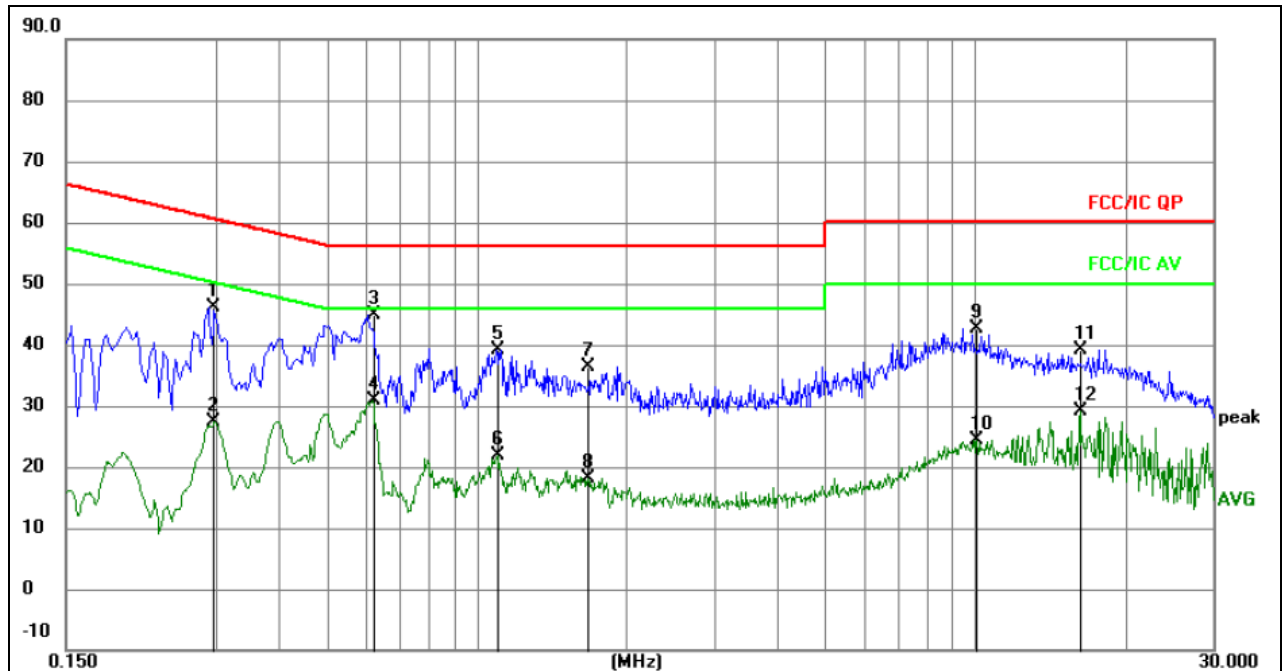
- The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

6.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

6.5 Test Result

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Phase :	L
Test Voltage :	AC120V 60Hz	Test Mode :	Mode 4

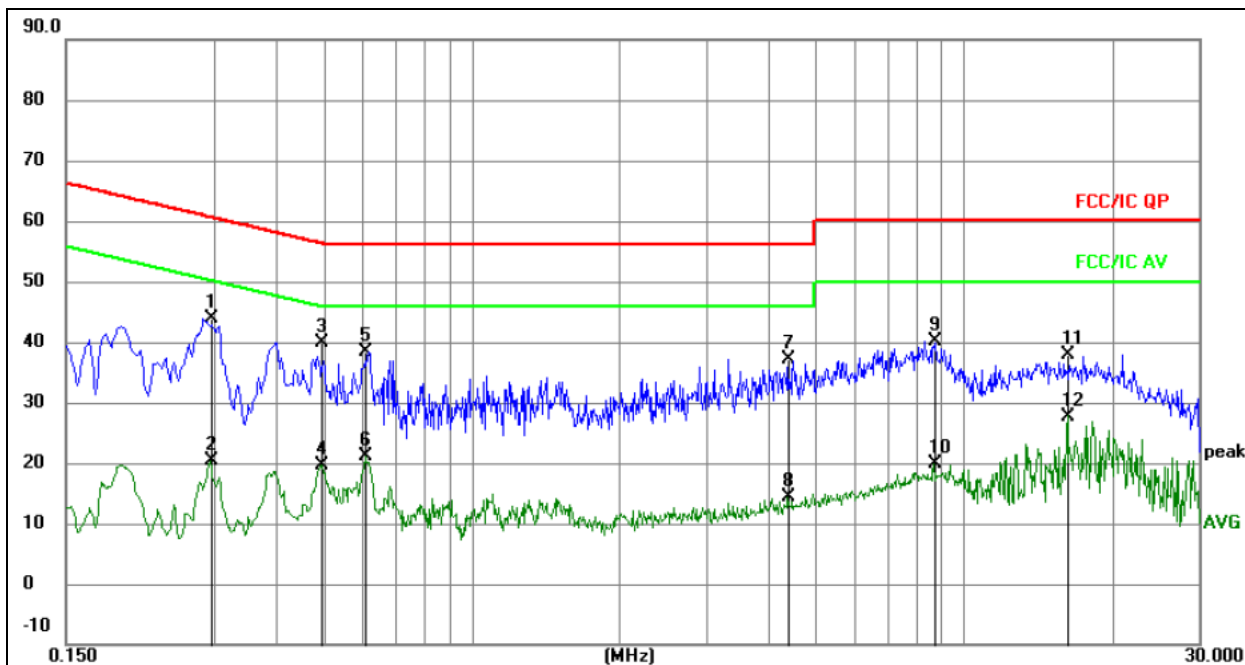


Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz		dB	dBuV	dBuV	dB	Detector	Comment
1		0.2971	36.43	9.58	46.01	60.32	-14.31	QP	
2		0.2971	17.81	9.58	27.39	50.32	-22.93	AVG	
3	*	0.6173	34.86	9.94	44.80	56.00	-11.20	QP	
4		0.6173	20.97	9.94	30.91	46.00	-15.09	AVG	
5		1.0997	29.54	9.57	39.11	56.00	-16.89	QP	
6		1.0997	12.28	9.57	21.85	46.00	-24.15	AVG	
7		1.6713	26.79	9.58	36.37	56.00	-19.63	QP	
8		1.6713	8.48	9.58	18.06	46.00	-27.94	AVG	
9		10.0718	32.82	9.69	42.51	60.00	-17.49	QP	
10		10.0718	14.75	9.69	24.44	50.00	-25.56	AVG	
11		16.2256	29.47	9.72	39.19	60.00	-20.81	QP	
12		16.2256	19.52	9.72	29.24	50.00	-20.76	AVG	

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Phase :	N
Test Voltage :	AC120V 60Hz	Test Mode :	Mode 4



Remark:

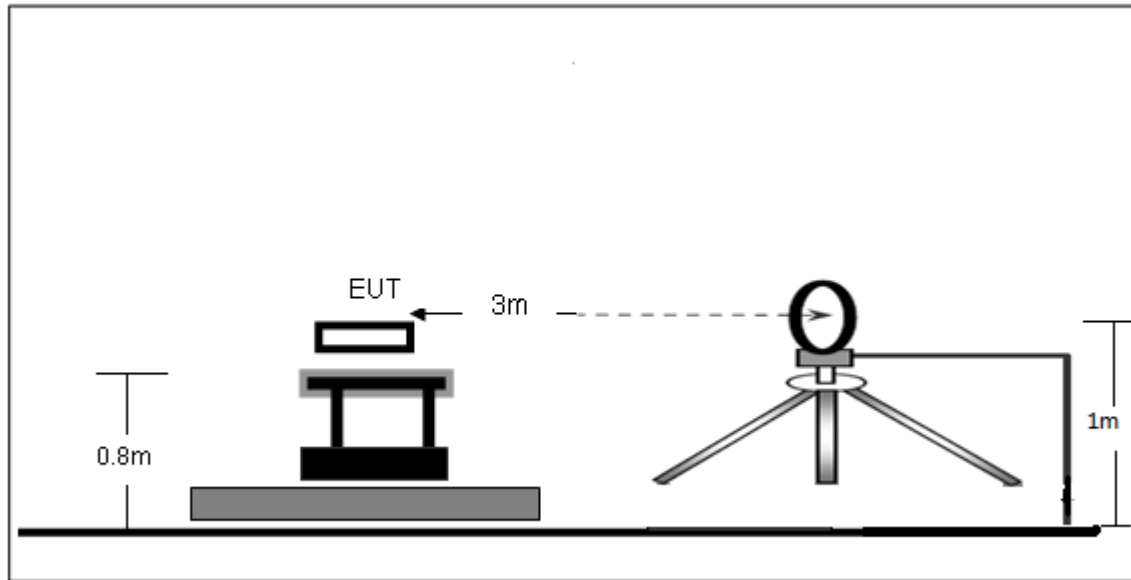
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz		dB	dBuV	dBuV	dB	Detector	Comment
1		0.2940	34.23	9.57	43.80	60.41	-16.61	QP	
2		0.2940	10.91	9.57	20.48	50.41	-29.93	AVG	
3	*	0.4965	30.41	9.59	40.00	56.06	-16.06	QP	
4		0.4965	9.98	9.59	19.57	46.06	-26.49	AVG	
5		0.6089	28.53	9.97	38.50	56.00	-17.50	QP	
6		0.6089	11.07	9.97	21.04	46.00	-24.96	AVG	
7		4.3980	27.39	9.76	37.15	56.00	-18.85	QP	
8		4.3980	4.60	9.76	14.36	46.00	-31.64	AVG	
9		8.7180	30.32	9.70	40.02	60.00	-19.98	QP	
10		8.7180	10.28	9.70	19.98	50.00	-30.02	AVG	
11		16.2285	28.28	9.72	38.00	60.00	-22.00	QP	
12		16.2285	18.03	9.72	27.75	50.00	-22.25	AVG	

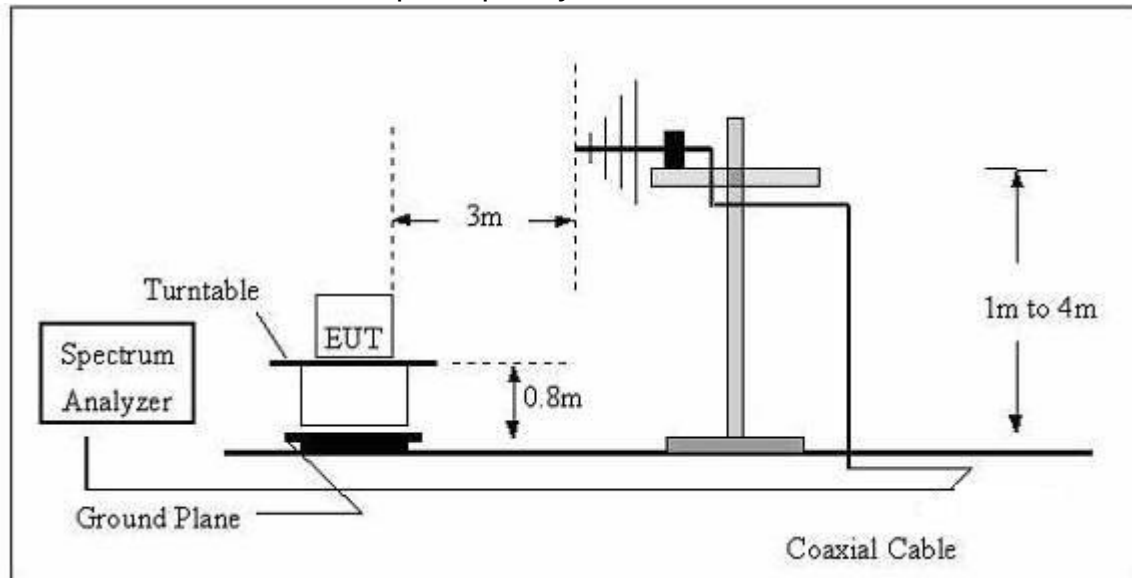
7. RADIATED EMISSIONS

7.1 Block Diagram Of Test Setup

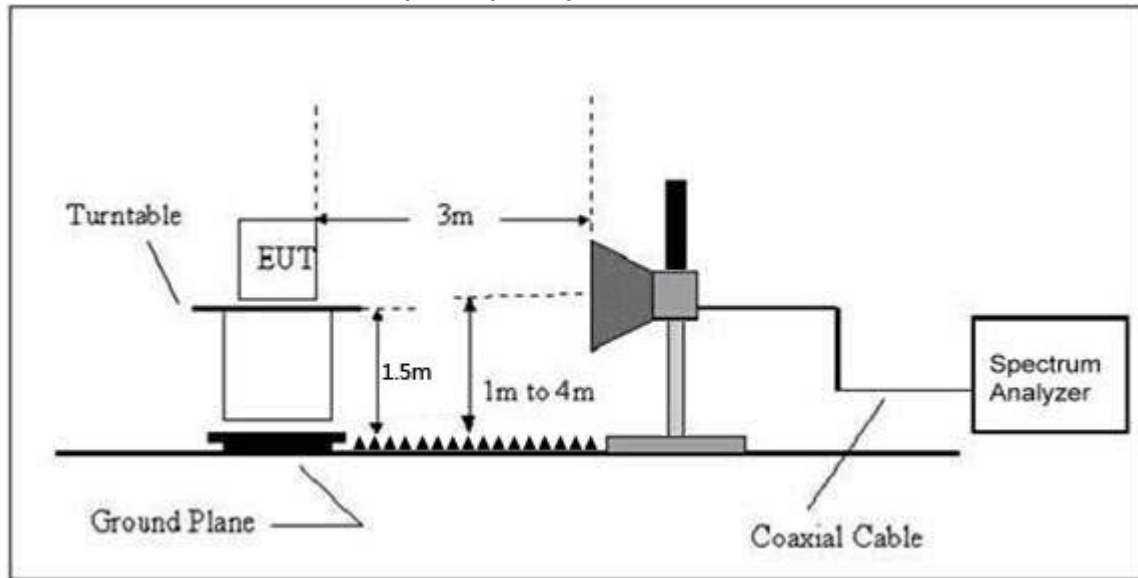
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



7.2 Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency (MHz)	Field Strength uV/m	Distance (m)	Field Strength Limit at 3m Distance	
			uV/m	dBuV/m
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1)The limit for radiated test was performed according to FCC PART 15C.
- (2)The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

7.3 Test procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205.

It must be performed with the highest gain of each type of antenna proposed for use with the EUT.

Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

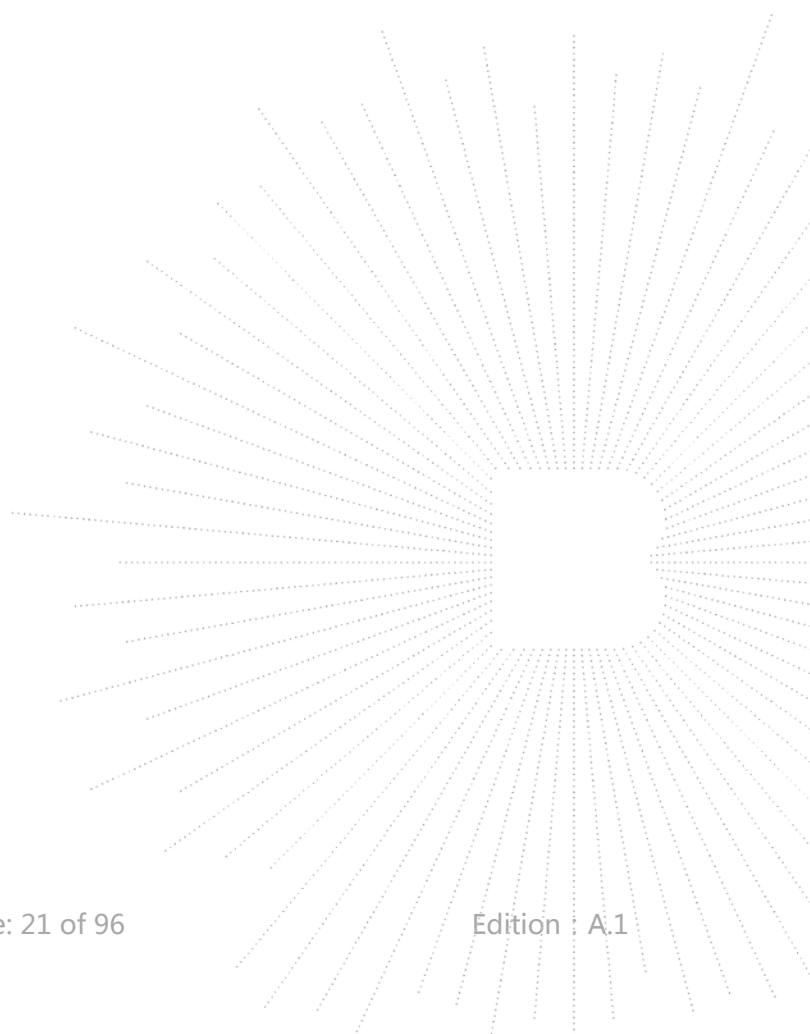
During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where $RBWCF [dB] = 10 \cdot \lg(100 [kHz] / \text{narrower RBW} [kHz])$. , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

7.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



7.5 Test Result

Below 30MHz

Temperature:	26℃	Relative Humidity:	24%
Pressure:	101 kPa	Test Voltage :	DC 12V
Test Mode :	Mode 4	Polarization :	--

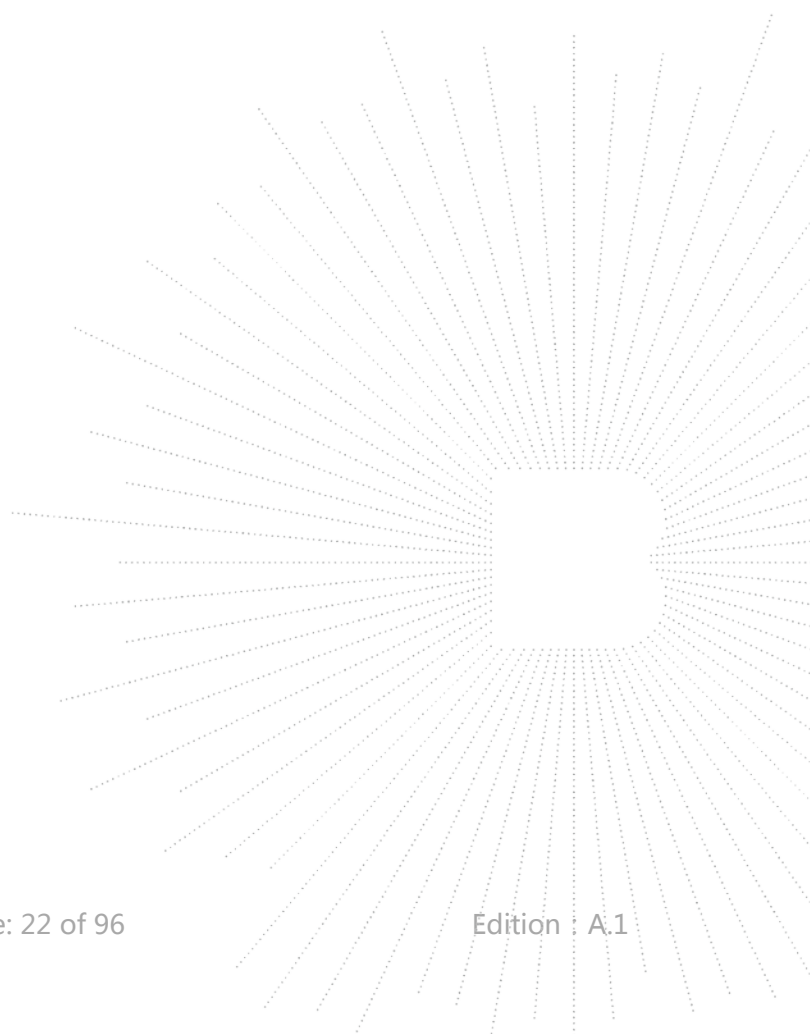
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

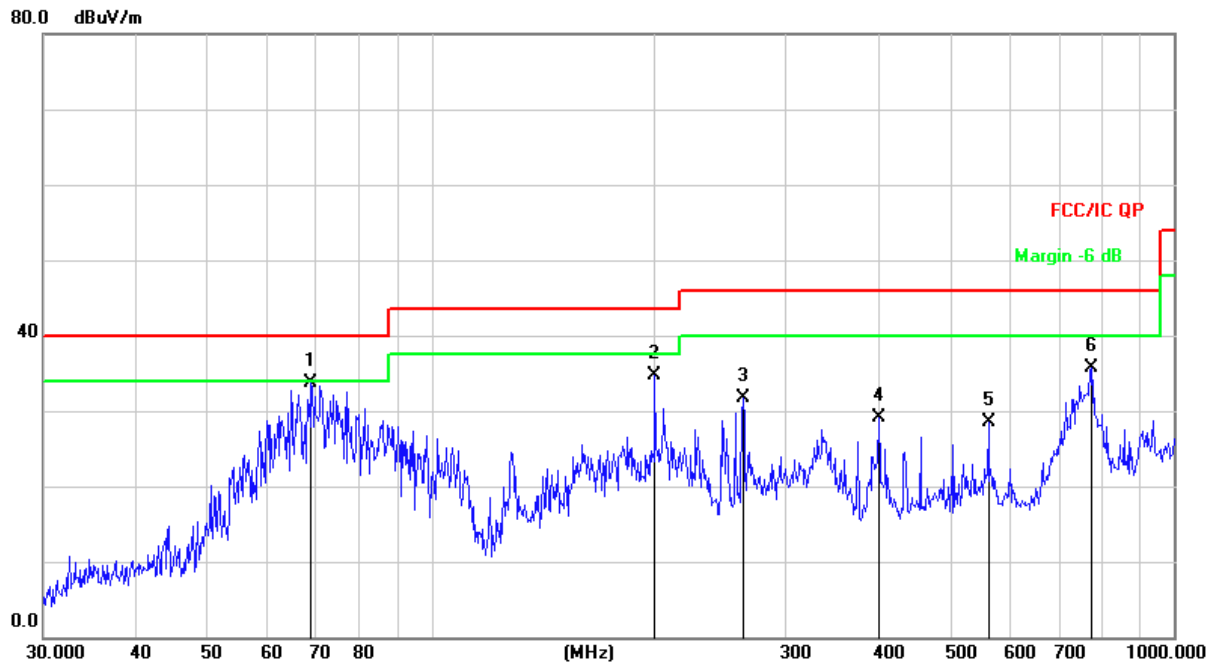
Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuV) + distance extrapolation factor.



Between 30MHz – 1GHz

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Test Voltage :	DC 12V
Test Mode :	Mode 4	Polarization :	Horizontal

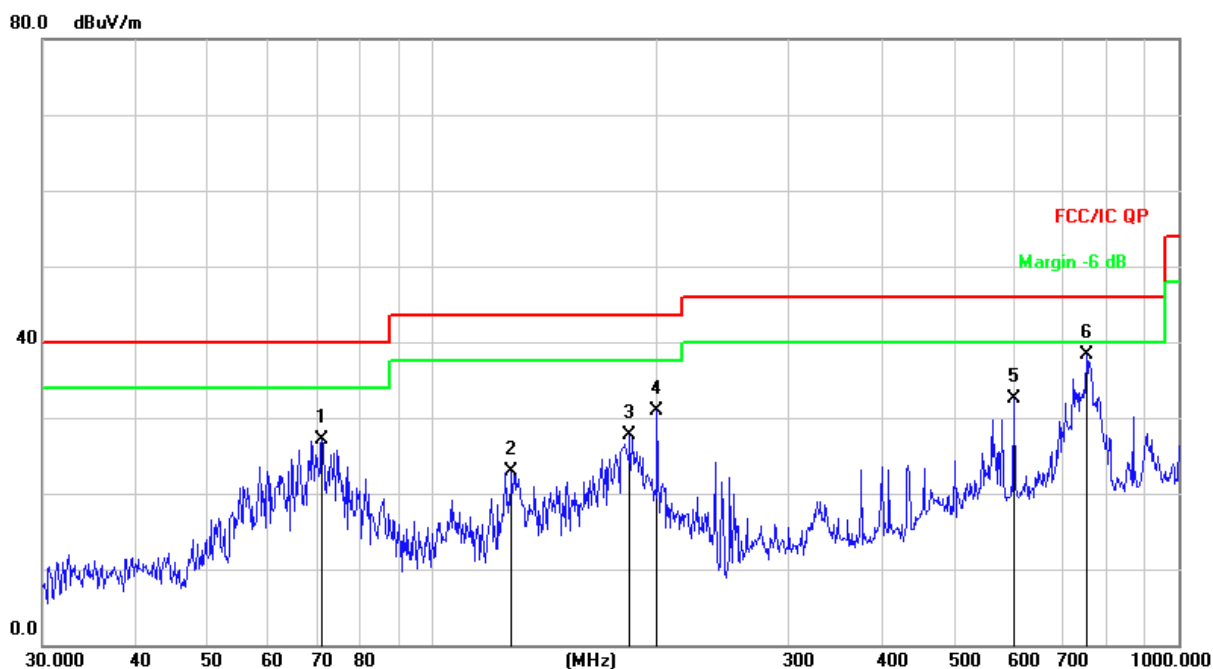


Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	68.8721	51.55	-17.93	33.62	40.00	-6.38	QP
2		199.9856	50.92	-16.30	34.62	43.50	-8.88	QP
3		262.8955	46.50	-14.75	31.75	46.00	-14.25	QP
4		400.4318	40.19	-11.08	29.11	46.00	-16.89	QP
5		562.6624	35.96	-7.39	28.57	46.00	-17.43	QP
6		774.1584	39.79	-4.00	35.79	46.00	-10.21	QP

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kpa	Test Voltage :	DC 12V
Test Mode :	Mode 4	Polarization :	Vertical



Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		71.0803	45.53	-18.43	27.10	40.00	-12.90	QP
2		127.6645	41.02	-18.06	22.96	43.50	-20.54	QP
3		183.8440	45.03	-17.33	27.70	43.50	-15.80	QP
4		199.9856	47.18	-16.30	30.88	43.50	-12.62	QP
5		601.4265	38.95	-6.53	32.42	46.00	-13.58	QP
6	*	752.7432	42.52	-4.30	38.22	46.00	-7.78	QP

Between 1GHz – 40GHz

Test Mode :	TX(5.2G) - 802.11a
-------------	--------------------

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	4434.157	62.25	5.94	35.40	44.00	59.59	68.20	-8.61	Pk
Vertical	4434.157	46.54	5.94	35.40	44.00	43.88	54.00	-10.12	AV
Vertical	10360.362	60.48	8.46	39.75	44.50	64.19	68.20	-4.01	Pk
Vertical	10360.362	42.96	8.46	39.75	44.50	46.67	54.00	-7.33	AV
Vertical	15540.196	61.49	10.12	38.80	44.10	66.31	74.00	-7.69	Pk
Vertical	15540.196	37.52	10.12	38.80	42.70	43.74	54.00	-10.26	AV
Horizontal	4434.521	66.59	5.94	35.18	44.00	63.71	68.20	-4.49	Pk
Horizontal	4434.521	44.17	5.94	35.18	44.00	41.29	54.00	-12.71	AV
Horizontal	10360.623	58.93	8.46	38.71	44.50	61.6	68.20	-6.6	Pk
Horizontal	10360.623	41.03	8.46	38.71	44.50	43.7	54.00	-10.3	AV
Horizontal	15540.865	56.95	10.12	38.38	44.10	61.35	74.00	-12.65	Pk
Horizontal	15540.865	38.82	10.12	38.38	44.10	43.22	54.00	-10.78	AV
middle Channel (5200 MHz)-Above 1G									
Vertical	4592.093	60.24	6.48	36.35	44.05	59.02	74.00	-14.98	Pk
Vertical	4592.093	41.92	6.48	36.35	44.05	40.7	54.00	-13.3	AV
Vertical	10400.424	59.65	8.47	37.88	44.51	61.49	68.20	-6.71	Pk
Vertical	10400.424	42.76	8.47	37.88	44.51	44.6	54.00	-9.4	AV
Vertical	15600.218	56.52	10.12	38.8	44.10	61.34	74.00	-12.66	Pk
Vertical	15600.218	36.63	10.12	38.8	42.70	42.85	54.00	-11.15	AV
Horizontal	4592.691	59.87	6.48	36.37	44.05	58.67	74.00	-15.33	Pk
Horizontal	4592.691	43.14	6.48	36.37	44.05	41.94	54.00	-12.06	AV
Horizontal	10400.114	58.82	8.47	38.64	44.50	61.43	68.20	-6.77	Pk
Horizontal	10400.114	42.26	8.47	38.64	44.50	44.87	54.00	-9.13	AV
Horizontal	15600.187	59.86	10.12	38.38	44.10	64.26	74.00	-9.74	Pk
Horizontal	15600.187	38.78	10.12	38.38	44.10	43.18	54.00	-10.82	AV
High Channel (5240 MHz)-Above 1G									
Vertical	4739.246	61.23	7.10	37.24	43.50	62.07	74.00	-11.93	Pk
Vertical	4739.246	44.47	7.10	37.24	43.50	45.31	54.00	-8.69	AV
Vertical	10480.371	60.58	8.46	37.68	44.50	62.22	68.20	-5.98	Pk
Vertical	10480.371	40.39	8.46	37.68	44.50	42.03	54.00	-11.97	AV
Vertical	15720.359	61.77	10.12	38.8	44.10	66.59	74.00	-7.41	Pk
Vertical	15720.359	39.63	10.12	38.8	42.70	45.85	54.00	-8.15	AV
Horizontal	4739.352	62.26	7.10	37.24	43.50	63.1	74.00	-10.9	Pk
Horizontal	4739.352	43.23	7.10	37.24	43.50	44.07	54.00	-9.93	AV
Horizontal	10480.111	62.56	8.46	38.57	44.50	65.09	68.20	-3.11	Pk
Horizontal	10480.111	43.34	8.46	38.57	44.50	45.87	54.00	-8.13	AV
Horizontal	15720.357	60.77	10.12	38.38	44.10	65.17	74.00	-8.83	Pk
Horizontal	15720.357	42.23	10.12	38.38	44.10	46.63	54.00	-7.37	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
The worst case is Antenna A.

Test Mode :	TX(5.2G) - 802.11n-HT20
-------------	-------------------------

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	4434.157	62.25	5.94	35.40	44.00	59.59	68.20	-8.61	Pk
Vertical	4434.157	46.58	5.94	35.40	44.00	43.92	54.00	-10.08	AV
Vertical	10360.362	60.42	8.46	39.75	44.50	64.13	68.20	-4.07	Pk
Vertical	10360.362	42.94	8.46	39.75	44.50	46.65	54.00	-7.35	AV
Vertical	15540.196	61.42	10.12	38.80	44.10	66.24	74.00	-7.76	Pk
Vertical	15540.196	37.54	10.12	38.80	42.70	43.76	54.00	-10.24	AV
Horizontal	4434.521	66.52	5.94	35.18	44.00	63.64	68.20	-4.56	Pk
Horizontal	4434.521	44.18	5.94	35.18	44.00	41.3	54.00	-12.7	AV
Horizontal	10360.623	58.92	8.46	38.71	44.50	61.59	68.20	-6.61	Pk
Horizontal	10360.623	41.08	8.46	38.71	44.50	43.75	54.00	-10.25	AV
Horizontal	15540.865	56.96	10.12	38.38	44.10	61.36	74.00	-12.64	Pk
Horizontal	15540.865	38.88	10.12	38.38	44.10	43.28	54.00	-10.72	AV
middle Channel (5200 MHz)-Above 1G									
Vertical	4592.093	60.24	6.48	36.35	44.05	59.02	74.00	-14.98	Pk
Vertical	4592.093	41.92	6.48	36.35	44.05	40.7	54.00	-13.3	AV
Vertical	10400.424	59.65	8.47	37.88	44.51	61.49	68.20	-6.71	Pk
Vertical	10400.424	42.72	8.47	37.88	44.51	44.56	54.00	-9.44	AV
Vertical	15600.218	56.51	10.12	38.8	44.10	61.33	74.00	-12.67	Pk
Vertical	15600.218	36.63	10.12	38.8	42.70	42.85	54.00	-11.15	AV
Horizontal	4592.691	59.87	6.48	36.37	44.05	58.67	74.00	-15.33	Pk
Horizontal	4592.691	43.14	6.48	36.37	44.05	41.94	54.00	-12.06	AV
Horizontal	10400.114	58.82	8.47	38.64	44.50	61.43	68.20	-6.77	Pk
Horizontal	10400.114	42.22	8.47	38.64	44.50	44.83	54.00	-9.17	AV
Horizontal	15600.187	59.82	10.12	38.38	44.10	64.22	74.00	-9.78	Pk
Horizontal	15600.187	38.79	10.12	38.38	44.10	43.19	54.00	-10.81	AV
High Channel (5240 MHz)-Above 1G									
Vertical	4739.246	61.27	7.10	37.24	43.50	62.11	74.00	-11.89	Pk
Vertical	4739.246	44.41	7.10	37.24	43.50	45.25	54.00	-8.75	AV
Vertical	10480.371	60.54	8.46	37.68	44.50	62.18	68.20	-6.02	Pk
Vertical	10480.371	40.32	8.46	37.68	44.50	41.96	54.00	-12.04	AV
Vertical	15720.359	61.79	10.12	38.8	44.10	66.61	74.00	-7.39	Pk
Vertical	15720.359	39.67	10.12	38.8	42.70	45.89	54.00	-8.11	AV
Horizontal	4739.352	62.22	7.10	37.24	43.50	63.06	74.00	-10.94	Pk
Horizontal	4739.352	43.21	7.10	37.24	43.50	44.05	54.00	-9.95	AV
Horizontal	10480.111	62.62	8.46	38.57	44.50	65.15	68.20	-3.05	Pk
Horizontal	10480.111	43.36	8.46	38.57	44.50	45.89	54.00	-8.11	AV
Horizontal	15720.357	60.77	10.12	38.38	44.10	65.17	74.00	-8.83	Pk
Horizontal	15720.357	42.32	10.12	38.38	44.10	46.72	54.00	-7.28	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Test Mode is MIMO Mode.

Test Mode :	TX(5.2G) - 802.11n-HT40
-------------	-------------------------

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5190 MHz)-Above 1G									
Vertical	4434.157	62.28	5.94	35.40	44.00	59.62	74.00	-14.38	Pk
Vertical	4434.157	46.54	5.94	35.40	44.00	43.88	54.00	-10.12	AV
Vertical	10380.362	60.43	8.46	39.75	44.50	64.14	68.20	-4.06	Pk
Vertical	10380.362	42.92	8.46	39.75	44.50	46.63	54.00	-7.37	AV
Vertical	15570.196	61.48	10.12	38.80	44.10	66.3	74.00	-7.7	Pk
Vertical	15570.196	37.52	10.12	38.80	42.70	43.74	54.00	-10.26	AV
Horizontal	4434.521	66.56	5.94	35.18	44.00	63.68	74.00	-10.32	Pk
Horizontal	4434.521	44.25	5.94	35.18	44.00	41.37	54.00	-12.63	AV
Horizontal	10380.623	58.84	8.46	38.71	44.50	61.51	68.20	-6.69	Pk
Horizontal	10380.623	41.03	8.46	38.71	44.50	43.7	54.00	-10.3	AV
Horizontal	15570.865	56.92	10.12	38.38	44.10	61.32	74.00	-12.68	Pk
Horizontal	15570.865	38.85	10.12	38.38	44.10	43.25	54.00	-10.75	AV
High Channel (5230 MHz)-Above 1G									
Vertical	4739.246	61.36	7.10	37.24	43.50	62.2	74.00	-11.8	Pk
Vertical	4739.246	44.43	7.10	37.24	43.50	45.27	54.00	-8.73	AV
Vertical	10460.371	60.24	8.46	37.68	44.50	61.88	68.20	-6.32	Pk
Vertical	10460.371	40.42	8.46	37.68	44.50	42.06	54.00	-11.94	AV
Vertical	15690.359	61.62	10.12	38.8	44.10	66.44	74.00	-7.56	Pk
Vertical	15690.359	39.68	10.12	38.8	42.70	45.9	54.00	-8.1	AV
Horizontal	4739.352	62.24	7.10	37.24	43.50	63.08	74.00	-10.92	Pk
Horizontal	4739.352	43.13	7.10	37.24	43.50	43.97	54.00	-10.03	AV
Horizontal	10460.111	62.23	8.46	38.57	44.50	64.76	68.20	-3.44	Pk
Horizontal	10460.111	43.34	8.46	38.57	44.50	45.87	54.00	-8.13	AV
Horizontal	15690.357	60.72	10.12	38.38	44.10	65.12	74.00	-8.88	Pk
Horizontal	15690.357	42.29	10.12	38.38	44.10	46.69	54.00	-7.31	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamplifier Factor = Level.
Test Mode is MIMO Mode.

Test Mode :	TX (5.8G) -- 802.11a
-------------	----------------------

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G									
Vertical	4679.195	59.94	5.94	35.40	44.00	57.28	74.00	-16.72	Pk
Vertical	4679.195	39.62	5.94	35.40	44.00	36.96	54.00	-17.04	AV
Vertical	11490.364	59.53	8.46	39.75	44.50	63.24	74.00	-10.76	Pk
Vertical	11490.364	42.18	8.46	39.75	44.50	45.89	54.00	-8.11	AV
Vertical	17235.101	55.56	10.12	38.80	44.10	60.38	68.20	-7.82	Pk
Vertical	17235.101	38.64	10.12	38.80	42.70	44.86	54.00	-9.14	AV
Horizontal	4679.332	57.92	5.94	35.18	44.00	55.04	74.00	-18.96	Pk
Horizontal	4679.332	44.59	5.94	35.18	44.00	41.71	54.00	-12.29	AV
Horizontal	11490.164	56.64	8.46	38.71	44.50	59.31	74.00	-14.69	Pk
Horizontal	11490.164	40.12	8.46	38.71	44.50	42.79	54.00	-11.21	AV
Horizontal	17235.196	58.68	10.12	38.38	44.10	63.08	68.20	-5.12	Pk
Horizontal	17235.196	42.23	10.12	38.38	44.10	46.63	54.00	-7.37	AV
middle Channel (5785 MHz)-Above 1G									
Vertical	4592.228	59.87	6.48	36.35	44.05	58.65	74.00	-15.35	Pk
Vertical	4592.228	43.34	6.48	36.35	44.05	42.12	54.00	-11.88	AV
Vertical	11570.203	61.16	8.47	37.88	44.51	63	74.00	-11	Pk
Vertical	11570.203	43.24	8.47	37.88	44.51	45.08	54.00	-8.92	AV
Vertical	17355.147	59.52	10.12	38.8	44.10	64.34	68.20	-3.86	Pk
Vertical	17355.147	42.26	10.12	38.8	42.70	48.48	54.00	-5.52	AV
Horizontal	4592.526	58.69	6.48	36.37	44.05	57.49	74.00	-16.51	Pk
Horizontal	4592.526	43.37	6.48	36.37	44.05	42.17	54.00	-11.83	AV
Horizontal	11570.123	60.02	8.47	38.64	44.50	62.63	74.00	-11.37	Pk
Horizontal	11570.123	42.24	8.47	38.64	44.50	44.85	54.00	-9.15	AV
Horizontal	17355.269	57.56	10.12	38.38	44.10	61.96	68.20	-6.24	Pk
Horizontal	17355.269	42.28	10.12	38.38	44.10	46.68	54.00	-7.32	AV
High Channel (5825 MHz)-Above 1G									
Vertical	6039.199	57.64	7.10	37.24	43.50	58.48	68.20	-9.72	Pk
Vertical	6039.199	42.23	7.10	37.24	43.50	43.07	54.00	-10.93	AV
Vertical	11650.562	58.91	8.46	37.68	44.50	60.55	74.00	-13.45	Pk
Vertical	11650.562	41.13	8.46	37.68	44.50	42.77	54.00	-11.23	AV
Vertical	17475.128	58.58	10.12	38.8	44.10	63.4	68.20	-4.8	Pk
Vertical	17475.128	40.34	10.12	38.8	42.70	46.56	54.00	-7.44	AV
Horizontal	6039.232	59.99	7.10	37.24	43.50	60.83	68.20	-7.37	Pk
Horizontal	6039.232	43.31	7.10	37.24	43.50	44.15	54.00	-9.85	AV
Horizontal	11650.319	52.26	8.46	38.57	44.50	54.79	74.00	-19.21	Pk
Horizontal	11650.319	40.17	8.46	38.57	44.50	42.7	54.00	-11.3	AV
Horizontal	17475.062	57.72	10.12	38.38	44.10	62.12	68.20	-6.08	Pk
Horizontal	17475.062	40.34	10.12	38.38	44.10	44.74	54.00	-9.26	AV

Note: PK value is lower than the Average value limit, So average didn't record.

The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamplifier Factor = Level.

The Worst mode is Antenna A.

Test Mode : TX (5.8G) --802.11n-HT20

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G									
Vertical	4679.195	59.73	5.94	35.40	44.00	57.07	74.00	-16.93	Pk
Vertical	4679.195	39.54	5.94	35.40	44.00	36.88	54.00	-17.12	AV
Vertical	11490.364	59.52	8.46	39.75	44.50	63.23	74.00	-10.77	Pk
Vertical	11490.364	42.23	8.46	39.75	44.50	45.94	54.00	-8.06	AV
Vertical	17235.101	55.64	10.12	38.80	44.10	60.46	68.20	-7.74	Pk
Vertical	17235.101	38.82	10.12	38.80	42.70	45.04	54.00	-8.96	AV
Horizontal	4679.332	57.84	5.94	35.18	44.00	54.96	74.00	-19.04	Pk
Horizontal	4679.332	44.53	5.94	35.18	44.00	41.65	54.00	-12.35	AV
Horizontal	11490.164	56.42	8.46	38.71	44.50	59.09	74.00	-14.91	Pk
Horizontal	11490.164	40.11	8.46	38.71	44.50	42.78	54.00	-11.22	AV
Horizontal	17235.196	58.26	10.12	38.38	44.10	62.66	68.20	-5.54	Pk
Horizontal	17235.196	42.13	10.12	38.38	44.10	46.53	54.00	-7.47	AV
middle Channel (5785 MHz)-Above 1G									
Vertical	4592.228	59.84	6.48	36.35	44.05	58.62	74.00	-15.38	Pk
Vertical	4592.228	43.62	6.48	36.35	44.05	42.4	54.00	-11.6	AV
Vertical	11570.203	61.73	8.47	37.88	44.51	63.57	74.00	-10.43	Pk
Vertical	11570.203	43.24	8.47	37.88	44.51	45.08	54.00	-8.92	AV
Vertical	17355.147	61.43	10.12	38.8	44.10	66.25	68.20	-1.95	Pk
Vertical	17355.147	44.27	10.12	38.8	42.70	50.49	54.00	-3.51	AV
Horizontal	4592.526	52.51	6.48	36.37	44.05	51.31	74.00	-22.69	Pk
Horizontal	4592.526	46.23	6.48	36.37	44.05	45.03	54.00	-8.97	AV
Horizontal	11570.123	64.17	8.47	38.64	44.50	66.78	74.00	-7.22	Pk
Horizontal	11570.123	45.22	8.47	38.64	44.50	47.83	54.00	-6.17	AV
Horizontal	17355.269	53.53	10.12	38.38	44.10	57.93	68.20	-10.27	Pk
Horizontal	17355.269	41.27	10.12	38.38	44.10	45.67	54.00	-8.33	AV
High Channel (5825 MHz)-Above 1G									
Vertical	6039.199	55.66	7.10	37.24	43.50	56.5	68.20	-11.7	Pk
Vertical	6039.199	43.38	7.10	37.24	43.50	44.22	54.00	-9.78	AV
Vertical	11650.562	52.83	8.46	37.68	44.50	54.47	74.00	-19.53	Pk
Vertical	11650.562	43.15	8.46	37.68	44.50	44.79	54.00	-9.21	AV
Vertical	17475.128	54.58	10.12	38.8	44.10	59.4	68.20	-8.8	Pk
Vertical	17475.128	45.33	10.12	38.8	42.70	51.55	54.00	-2.45	AV
Horizontal	6039.232	55.95	7.10	37.24	43.50	56.79	68.20	-11.41	Pk
Horizontal	6039.232	43.49	7.10	37.24	43.50	44.33	54.00	-9.67	AV
Horizontal	11650.319	52.32	8.46	38.57	44.50	54.85	74.00	-19.15	Pk
Horizontal	11650.319	40.14	8.46	38.57	44.50	42.67	54.00	-11.33	AV
Horizontal	17475.062	57.76	10.12	38.38	44.10	62.16	68.20	-6.04	Pk
Horizontal	17475.062	40.38	10.12	38.38	44.10	44.78	54.00	-9.22	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
Test Mode is MIMO Mode.

Test Mode :	TX (5.8G) -- 802.11n-HT40
-------------	---------------------------

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5755 MHz)-Above 1G									
Vertical	4679.195	59.83	5.94	35.40	44.00	57.17	74.00	-16.83	Pk
Vertical	4679.195	39.62	5.94	35.40	44.00	36.96	54.00	-17.04	AV
Vertical	11510.364	59.54	8.46	39.75	44.50	63.25	74.00	-10.75	Pk
Vertical	11510.364	42.22	8.46	39.75	44.50	45.93	54.00	-8.07	AV
Vertical	17265.101	55.52	10.12	38.80	44.10	60.34	68.20	-7.86	Pk
Vertical	17265.101	38.47	10.12	38.80	42.70	44.69	54.00	-9.31	AV
Horizontal	4679.332	57.65	5.94	35.18	44.00	54.77	74.00	-19.23	Pk
Horizontal	4679.332	44.57	5.94	35.18	44.00	41.69	54.00	-12.31	AV
Horizontal	11510.164	56.63	8.46	38.71	44.50	59.3	74.00	-14.7	Pk
Horizontal	11510.164	40.12	8.46	38.71	44.50	42.79	54.00	-11.21	AV
Horizontal	17265.196	58.67	10.12	38.38	44.10	63.07	68.20	-5.13	Pk
Horizontal	17265.196	42.24	10.12	38.38	44.10	46.64	54.00	-7.36	AV
High Channel (5795 MHz)-Above 1G									
Vertical	6039.199	55.21	7.10	37.24	43.50	56.05	68.20	-12.15	Pk
Vertical	6039.199	43.23	7.10	37.24	43.50	44.07	54.00	-9.93	AV
Vertical	11590.562	52.81	8.46	37.68	44.50	54.45	74.00	-19.55	Pk
Vertical	11590.562	43.12	8.46	37.68	44.50	44.76	54.00	-9.24	AV
Vertical	17385.128	54.58	10.12	38.8	44.10	59.4	68.20	-8.8	Pk
Vertical	17385.128	45.34	10.12	38.8	42.70	51.56	54.00	-2.44	AV
Horizontal	6039.232	55.82	7.10	37.24	43.50	56.66	68.20	-11.54	Pk
Horizontal	6039.232	43.33	7.10	37.24	43.50	44.17	54.00	-9.83	AV
Horizontal	11590.319	52.27	8.46	38.57	44.50	54.8	74.00	-19.2	Pk
Horizontal	11590.319	40.13	8.46	38.57	44.50	42.66	54.00	-11.34	AV
Horizontal	17385.062	57.74	10.12	38.38	44.10	62.14	68.20	-6.06	Pk
Horizontal	17385.062	40.32	10.12	38.38	44.10	44.72	54.00	-9.28	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamplifier Factor = Level.
The Worst mode is Antenna A.

8. POWER SPECTRAL DENSITY TEST

8.1 Block Diagram Of Test Setup



8.2 Limit

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional

gain greater than 6 dBi are used, both the maximum conducted output power and the maximum

power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional

gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in

maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple colocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz

(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.3 Test procedure

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ KHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since $RBW=100 \text{ KHz}$ is available on nearly all spectrum analyzers.

8.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

8.5 Test Result

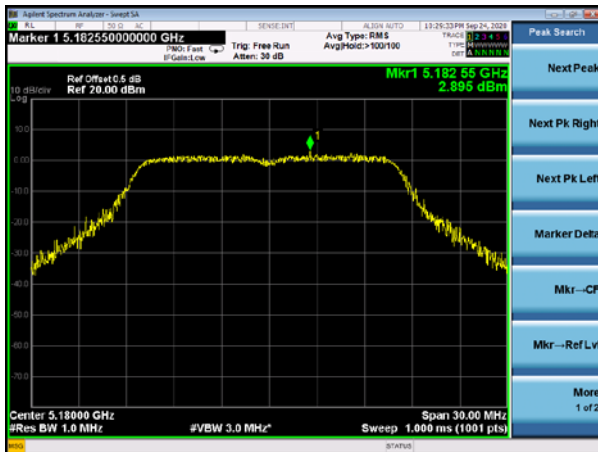
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
Test Mode :	TX Frequency U-NII-1 (5180-5240MHz)		

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B, only shown Antenna B Plot.

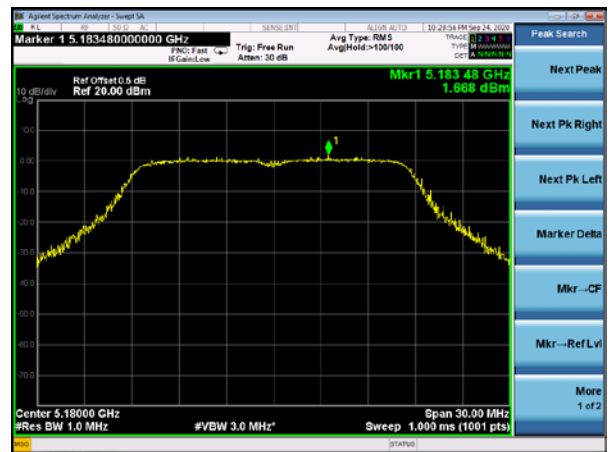
Note:Antenna A gain: 5dBi, Antenna B gain:5dBi, Directional gain=[10log(GA+ G B)] dbi =8.01dbi, limit=17-(8.01-6)=14.99

Mode	Frequency	Measured Power Density (dBm/MHz)			Limit (dBm/MHz)	Result
		ANT A	ANT B	Total		
802.11 a	5180 MHz	2.747	2.895	/	17	PASS
	5200 MHz	2.831	2.803	/	17	PASS
	5240 MHz	3.605	3.404	/	17	PASS
802.11 n20	5180 MHz	0.656	1.668	4.20	14.99	PASS
	5200 MHz	1.960	1.476	4.74	14.99	PASS
	5240 MHz	2.278	1.906	5.11	14.99	PASS
802.11 n40	5190 MHz	-0.048	-0.183	2.90	14.99	PASS
	5230 MHz	-0.758	0.330	2.83	14.99	PASS

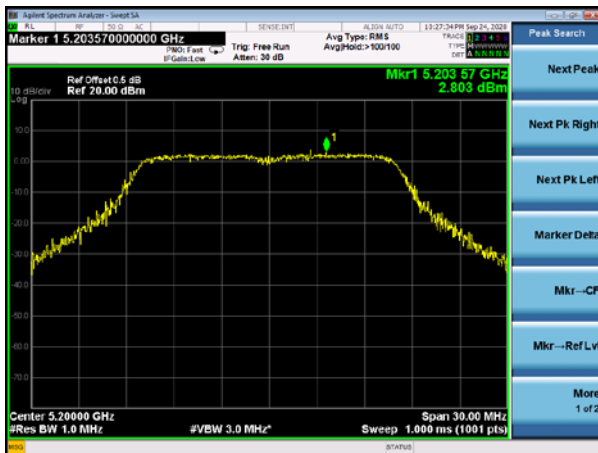
(802.11a) PSD plot on channel 36



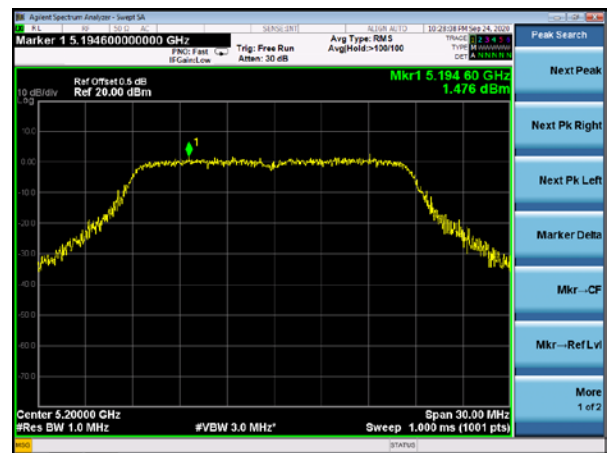
(802.11n20) PSD plot on channel 36



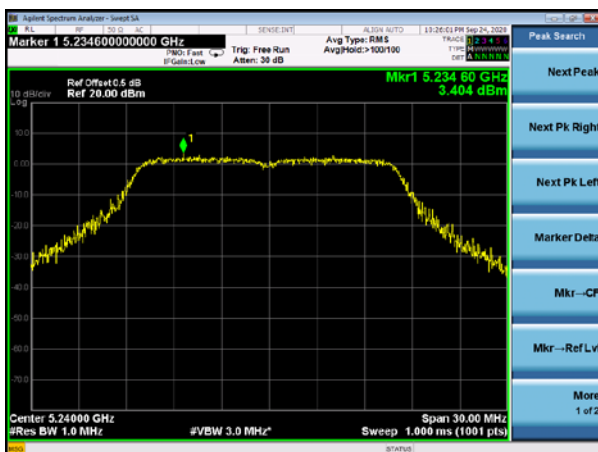
(802.11a) PSD plot on channel 40



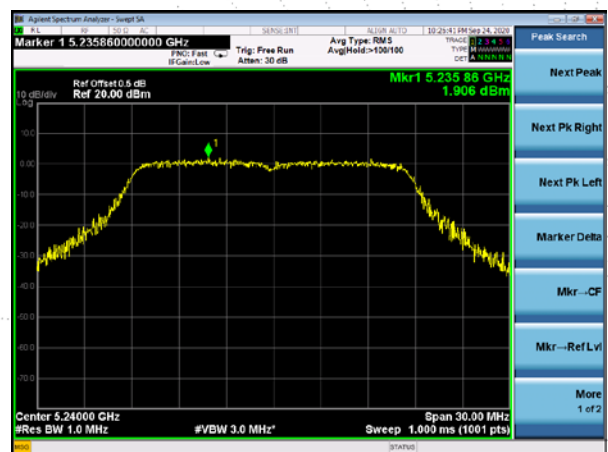
(802.11n20) PSD plot on channel 40



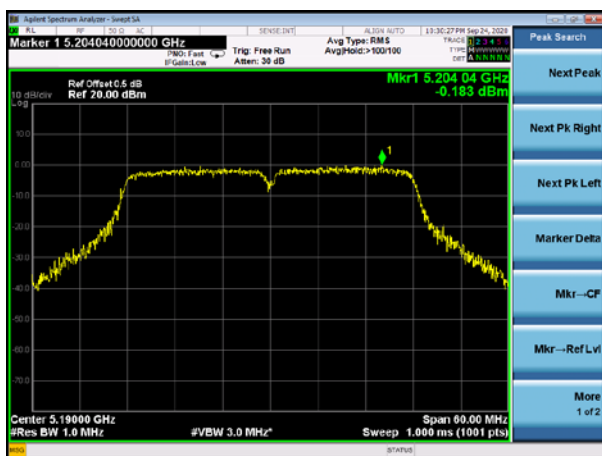
(802.11a) PSD plot on channel 48



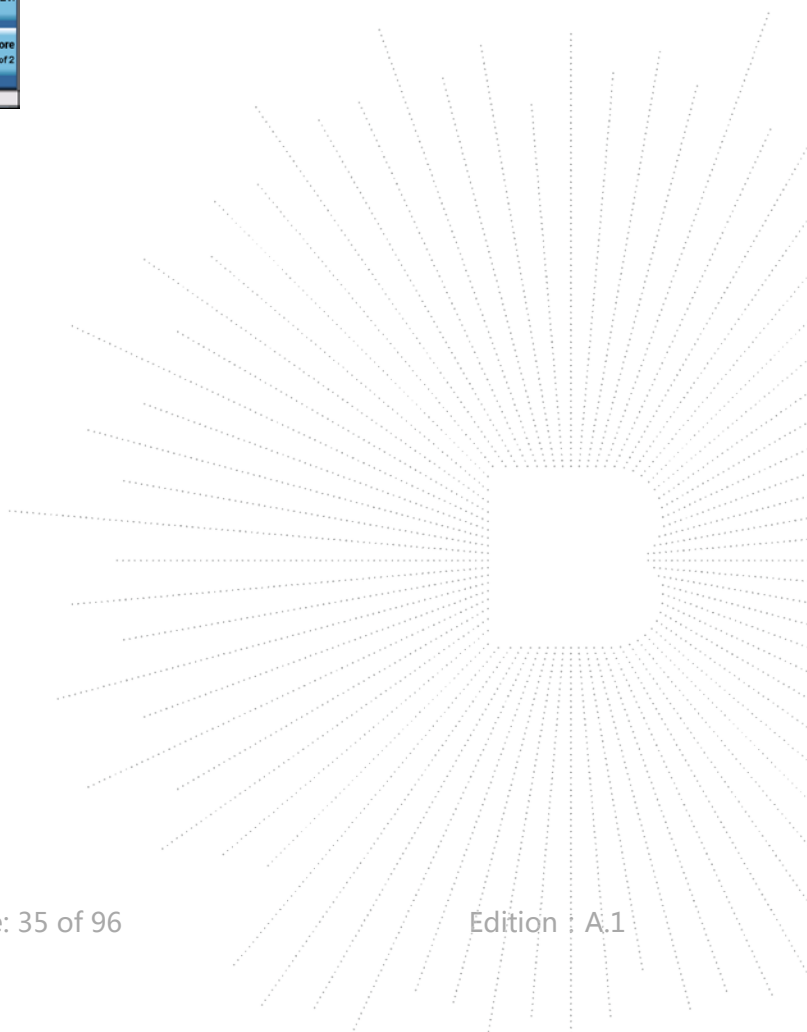
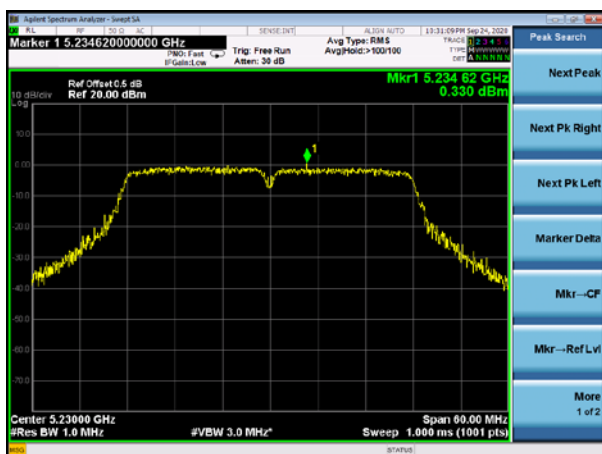
(802.11n20) PSD plot on channel 48



(802.11n40) PSD plot on channel 38



(802.11n40) PSD plot on channel 46

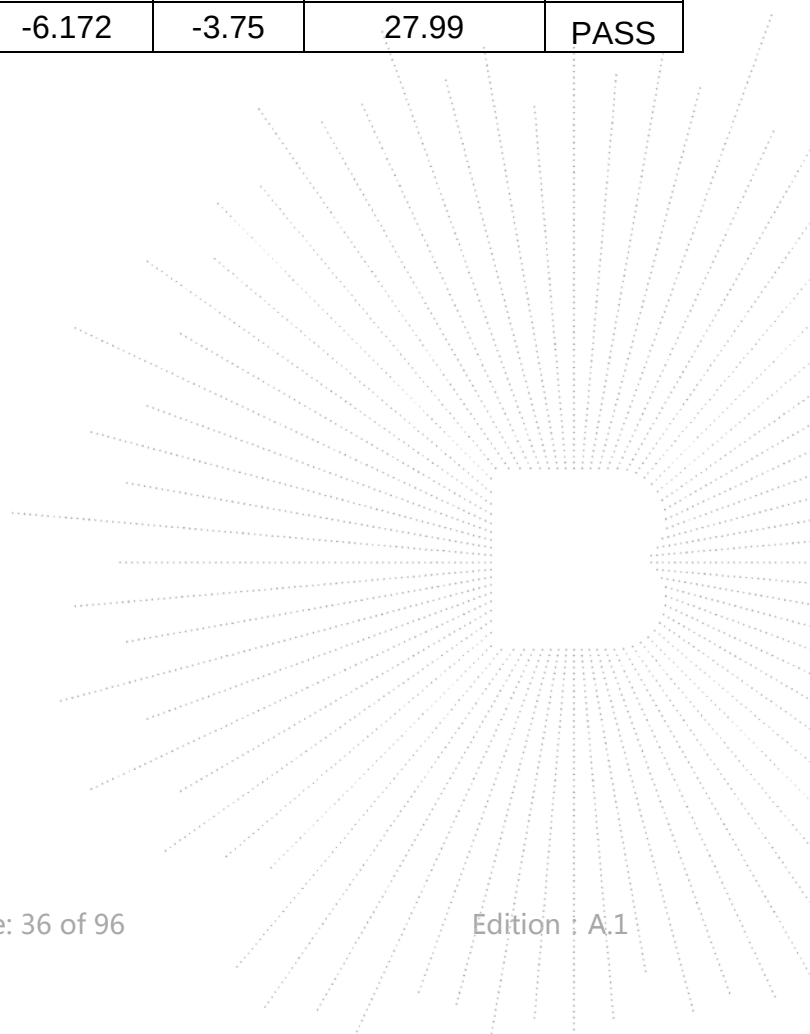


Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
Test Mode :	TX Frequency U-NII-3 (5745-5825MHz)		

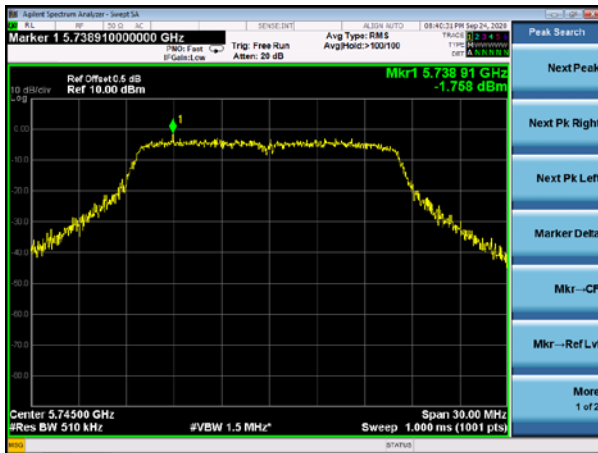
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B ,only shown Antenna B Plot.

Note:Antenna A gain: 5Bi, Antenna B gain: 5Bi, Directional gain=[10log(GA+ G B)] dbi=8.01
limit=30-(6.28-6)=27.99

Mode	Frequency	Measured Power Density (dBm/500KHz)			Limit (dBm/500kHz)	Result
		ANT A	ANT B	Total		
802.11 a	5745 MHz	-2.831	-1.758	/	30	PASS
	5785 MHz	-3.766	-3.484	/	30	PASS
	5825 MHz	-3.686	-4.303	/	30	PASS
802.11 n20	5745 MHz	-4.156	-4.785	-1.45	27.99	PASS
	5785 MHz	-4.907	-4.954	-1.92	27.99	PASS
	5825 MHz	-6.156	-5.571	-2.84	27.99	PASS
802.11 n40	5755 MHz	-6.374	-6.099	-3.22	27.99	PASS
	5795 MHz	-7.451	-6.172	-3.75	27.99	PASS



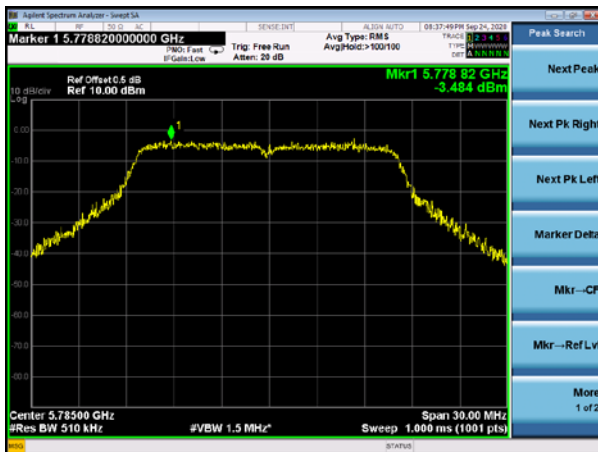
(802.11a) PSD plot on channel 149



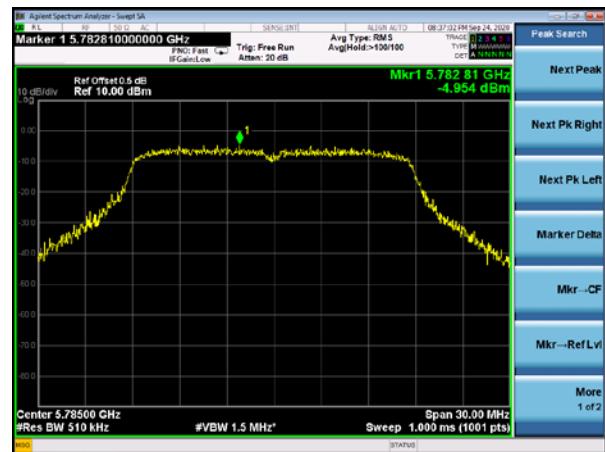
(802.11n20) PSD plot on channel 149



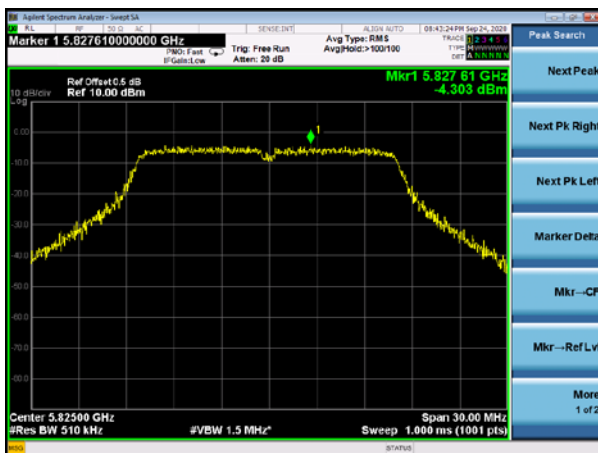
(802.11a) PSD plot on channel 157



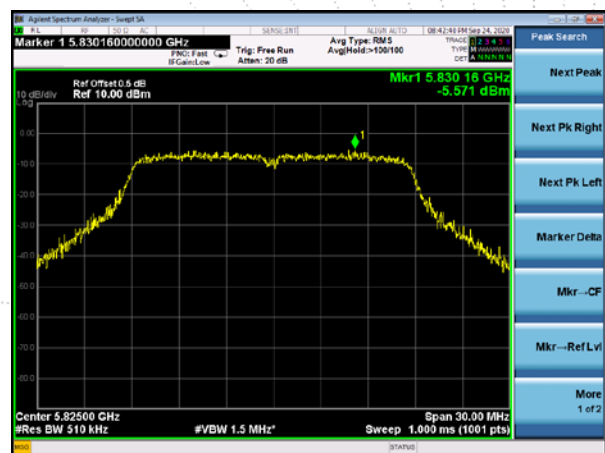
(802.11n20) PSD plot on channel 157



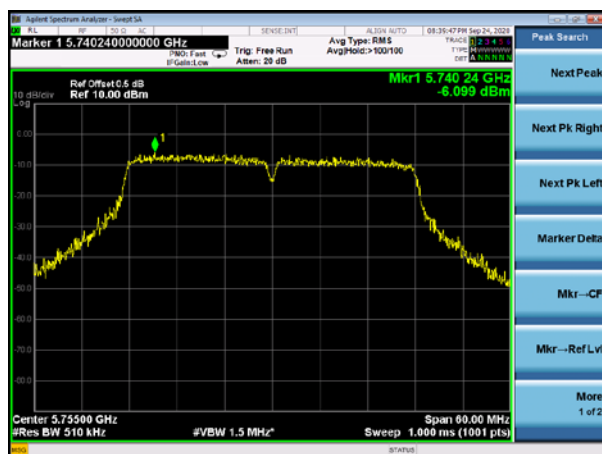
(802.11a) PSD plot on channel 165



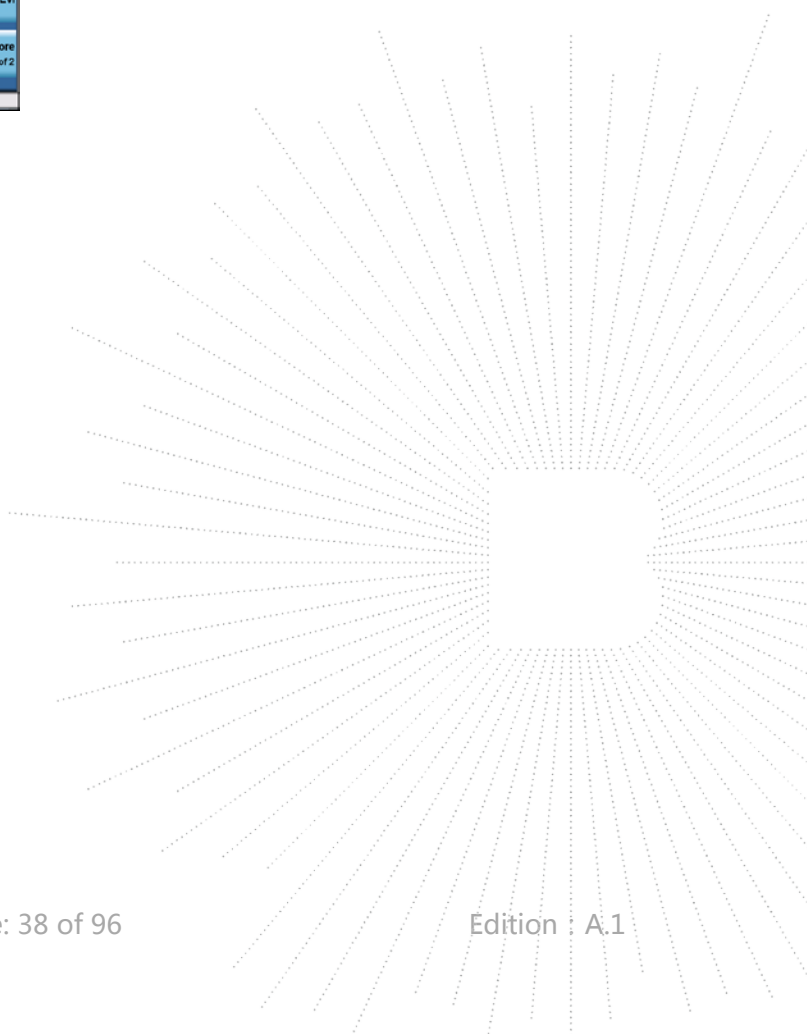
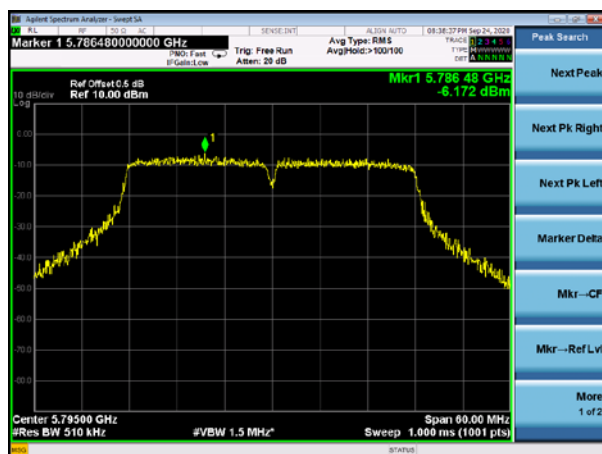
(802.11n20) PSD plot on channel 165



(802.11n40) PSD plot on channel 151

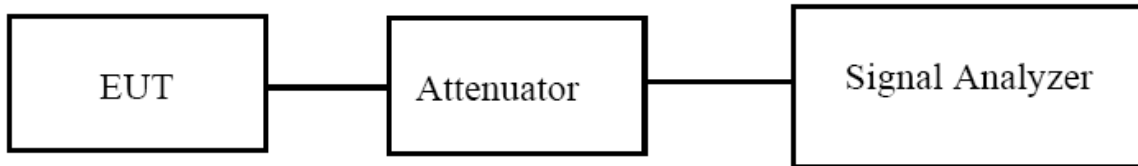


(802.11n40) PSD plot on channel 159



9. 26DB & 6DB & 99% EMISSION BANDWIDTH

9.1 Block Diagram Of Test Setup



9.2 Limit

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

9.3 Test procedure

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW $\geq 3 \cdot$ RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

9.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

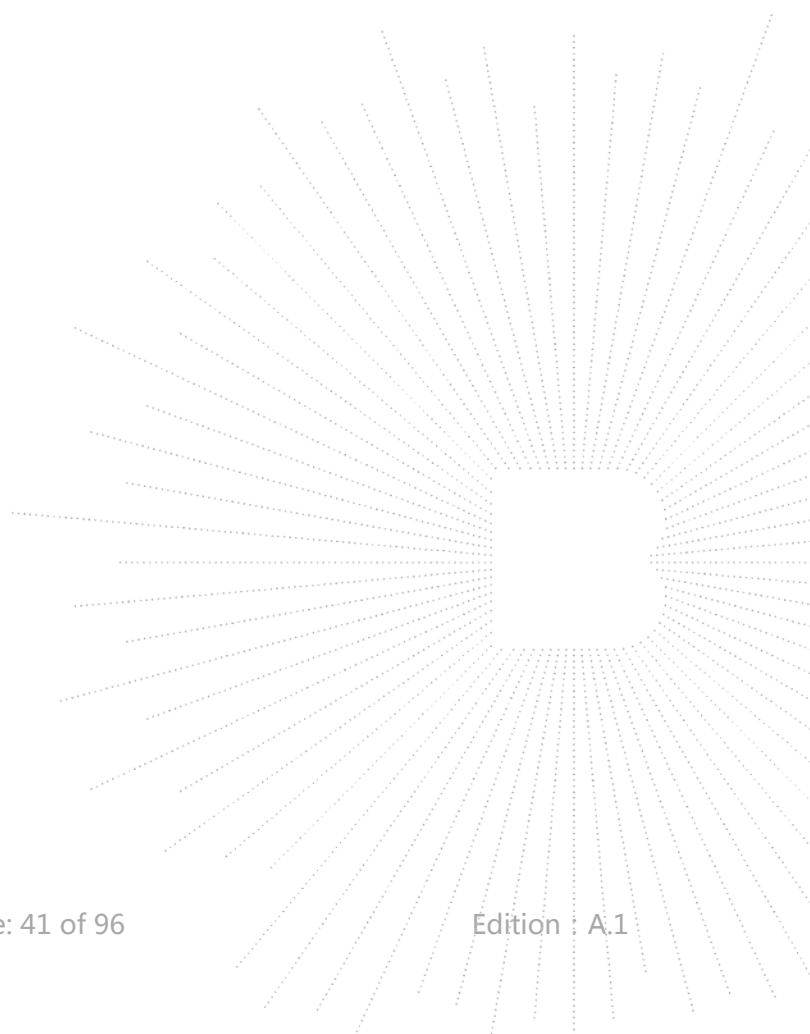
9.5 Test Result

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
Test Mode :	TX Frequency U-NII-1 (5180-5240MHz)		

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B ,only shown Antenna B Plot.

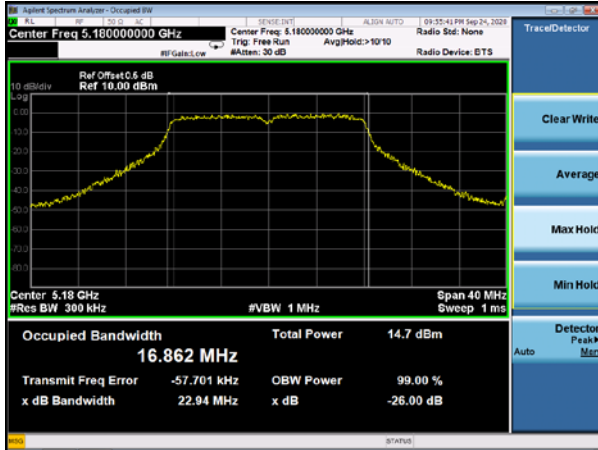
Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	26dB bandwidth (MHz)	Limit MHz	Result
			ANT A	ANT A		
802.11a	CH36	5180	16.829	22.58	N/A	Pass
	CH40	5200	16.831	22.39	N/A	Pass
	CH48	5240	16.783	22.13	N/A	Pass
802.11 n20	CH36	5180	17.868	22.81	N/A	Pass
	CH40	5200	17.931	23.24	N/A	Pass
	CH48	5240	17.904	23.24	N/A	Pass
802.11 n40	CH 38	5190	36.905	49.69	N/A	Pass
	CH 46	5230	37.457	49.29	N/A	Pass

Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	26dB bandwidth (MHz)	Limit MHz	Result
			ANT B	ANT B		
802.11a	CH36	5180	16.862	22.94	N/A	Pass
	CH40	5200	16.849	22.61	N/A	Pass
	CH48	5240	16.892	23.30	N/A	Pass
802.11 n20	CH36	5180	17.938	23.82	N/A	Pass
	CH40	5200	17.963	23.71	N/A	Pass
	CH48	5240	17.990	23.71	N/A	Pass
802.11 n40	CH 38	5190	37.288	50.15	N/A	Pass
	CH 46	5230	37.797	50.71	N/A	Pass

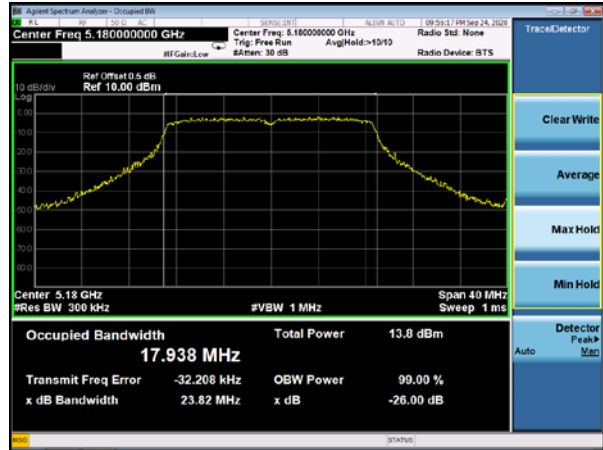


Test plot

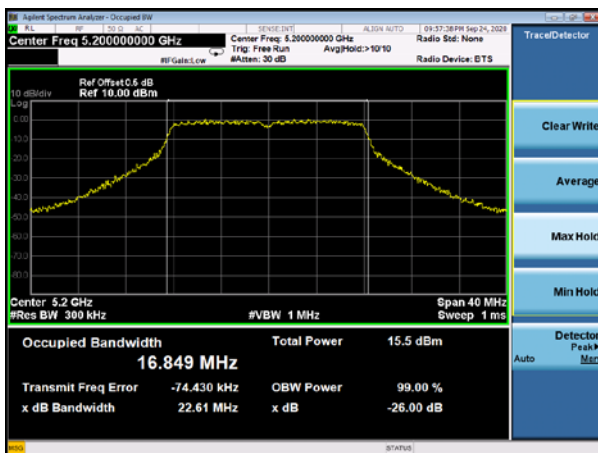
(802.11a) 26dB&99%Bandwidth plot on channel 36



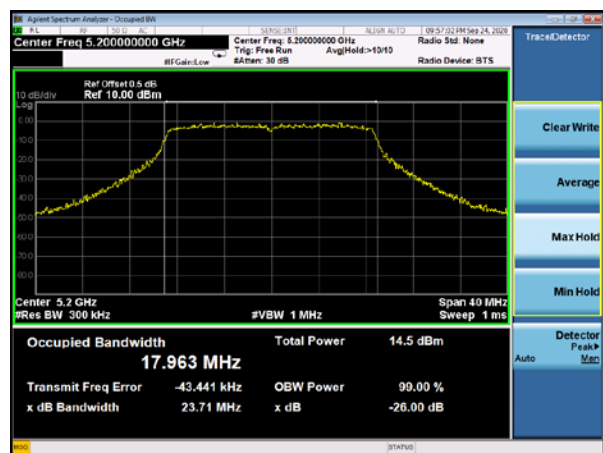
(802.11 n20) 26dB&99%Bandwidth plot on channel 36



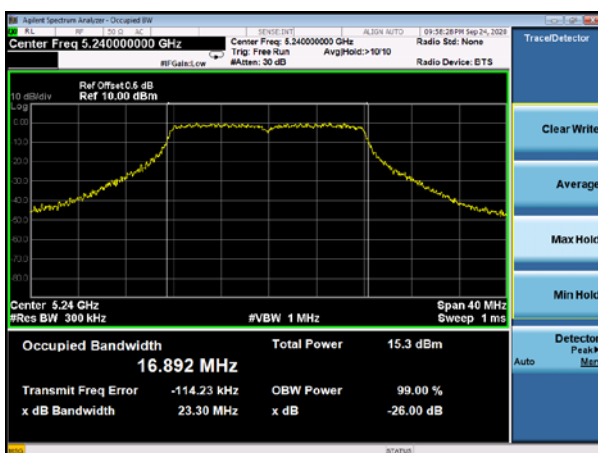
(802.11a) 26dB&99%Bandwidth plot on channel 40



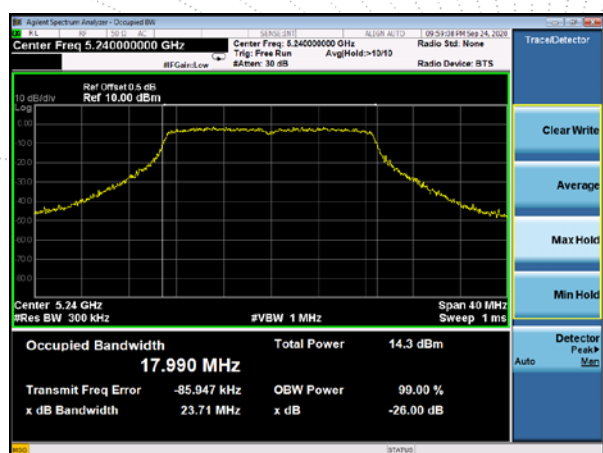
(802.11 n20) 26dB&99%Bandwidth plot on channel 40



(802.11a) 26dB&99%Bandwidth plot on channel 48

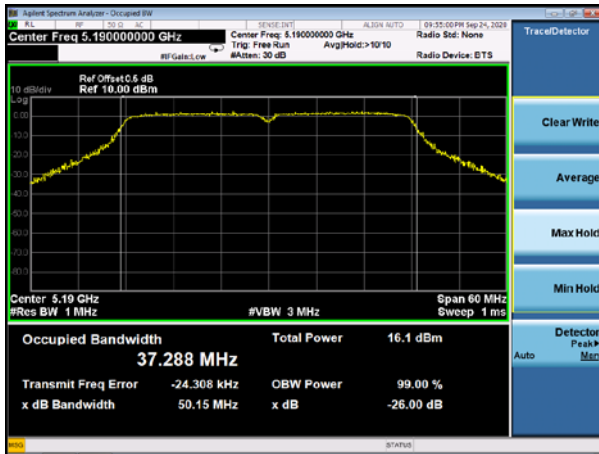


(802.11 n20) 26dB&99%Bandwidth plot on channel 48

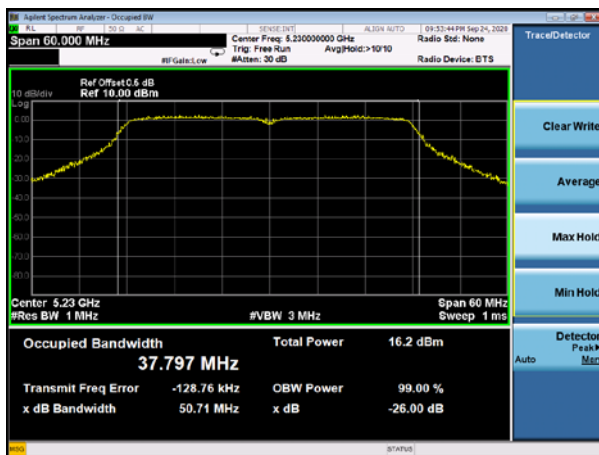


Test plot

(802.11 n40) 26dB&99%Bandwidth plot on
channel 38



(802.11 n40) 26dB&99%Bandwidth plot on
channel 46



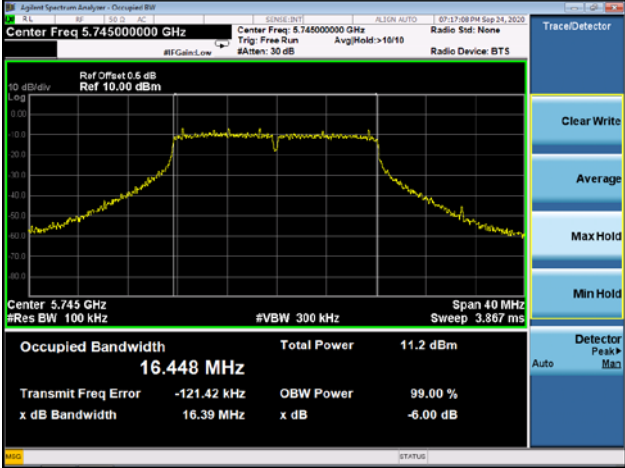
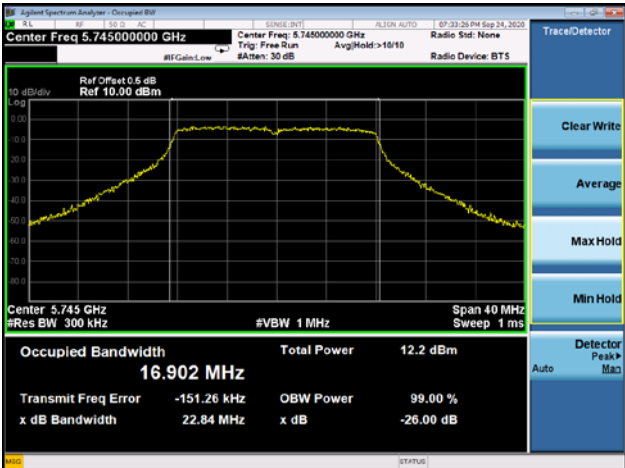
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
Test Mode :	TX Frequency U-NII-3(5745-5825MHz)		

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B ,only shown Antenna B Plot.

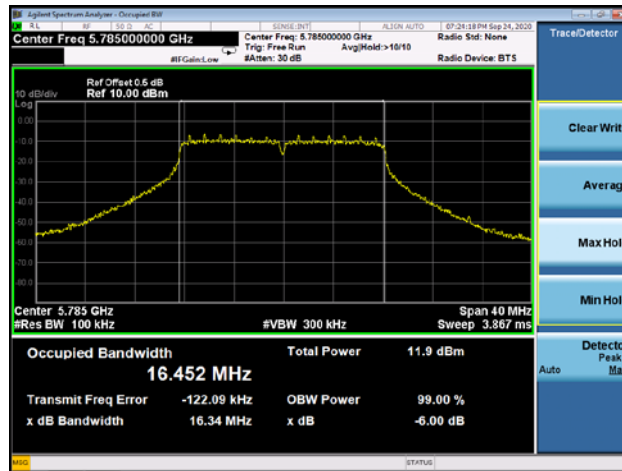
Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	6dB bandwidth (MHz)	Limit MHz	Result
			ANT A	ANT A		
802.11a	CH149	5745	16.835	16.07	≥500	Pass
	CH157	5785	16.780	16.36	≥500	Pass
	CH165	5825	16.809	16.36	≥500	Pass
802.11 n20	CH149	5745	17.902	17.31	≥500	Pass
	CH157	5785	17.876	17.3	≥500	Pass
	CH165	5825	17.947	17.58	≥500	Pass
802.11 n40	CH151	5755	37.148	35.77	≥500	Pass
	CH159	5795	36.975	35.78	≥500	Pass

Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	6dB bandwidth (MHz)	Limit MHz	Result
			ANT B	ANT B		
802.11a	CH149	5745	16.902	16.39	≥500	Pass
	CH157	5785	16.918	16.34	≥500	Pass
	CH165	5825	16.889	16.37	≥500	Pass
802.11 n20	CH149	5745	18.028	17.34	≥500	Pass
	CH157	5785	17.966	17.34	≥500	Pass
	CH165	5825	18.004	17.29	≥500	Pass
802.11 n40	CH151	5755	37.338	35.77	≥500	Pass
	CH159	5795	37.519	35.96	≥500	Pass

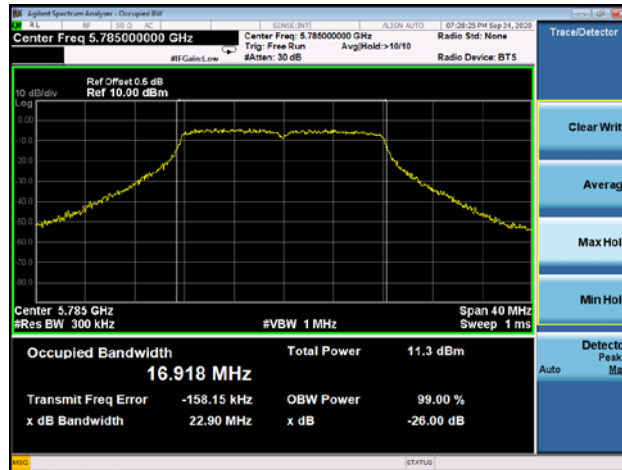
Antenna B: 5725-5850MHz

Mode:	802.11a
5745MHz 6dB bandwidth	 Agilent Spectrum Analyzer - Occupied BW Center Freq 5.74500000 GHz Ref Offset 0.5 dB Ref 10.00 dBm Center 5.745 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 3.867 ms Occupied Bandwidth 16.448 MHz Total Power 11.2 dBm Transmit Freq Error -121.42 kHz OBW Power 99.00 % x dB Bandwidth 16.39 MHz x dB -6.00 dB
5745MHz 99% bandwidth	 Agilent Spectrum Analyzer - Occupied BW Center Freq 5.74500000 GHz Ref Offset 0.5 dB Ref 10.00 dBm Center 5.745 GHz #Res BW 300 kHz #VBW 1 MHz Span 40 MHz Sweep 1 ms Occupied Bandwidth 16.902 MHz Total Power 12.2 dBm Transmit Freq Error -151.26 kHz OBW Power 99.00 % x dB Bandwidth 22.84 MHz x dB -26.00 dB

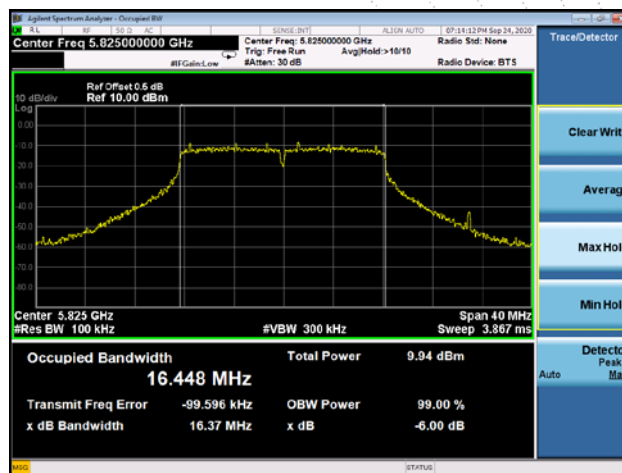
5785MHz
6dB bandwidth

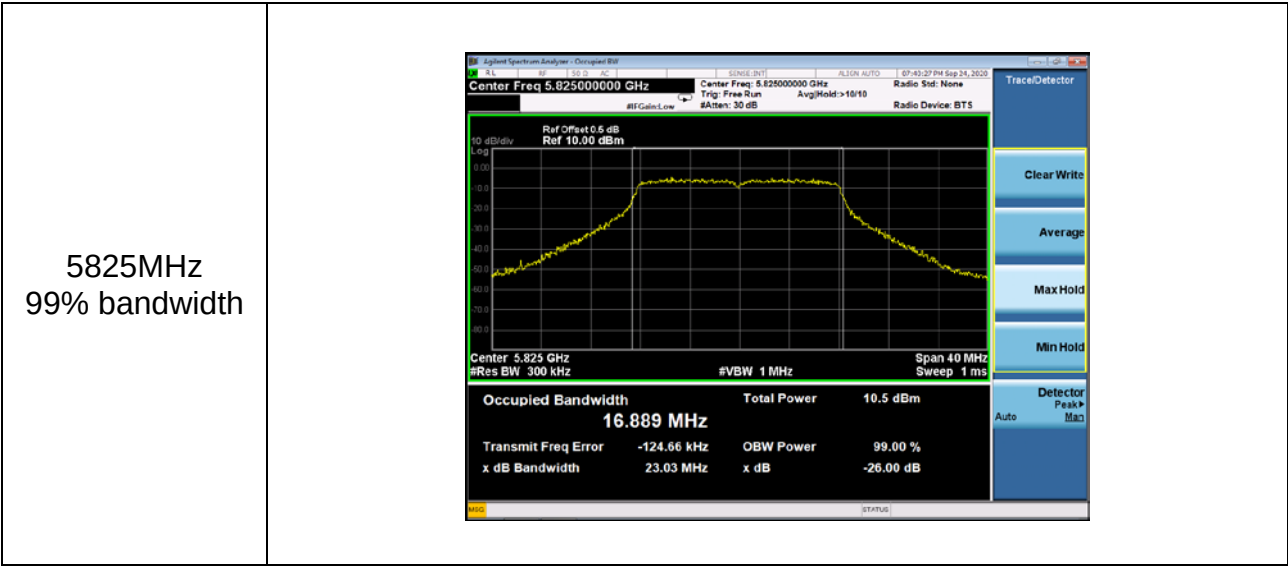


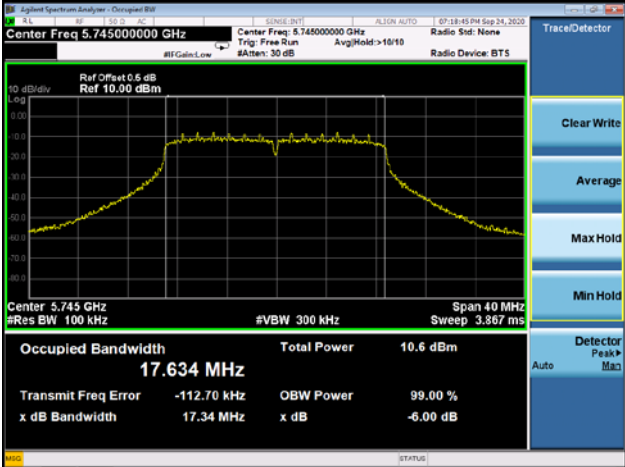
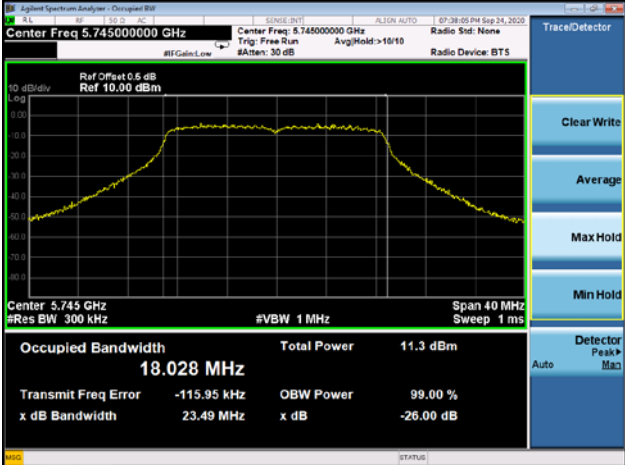
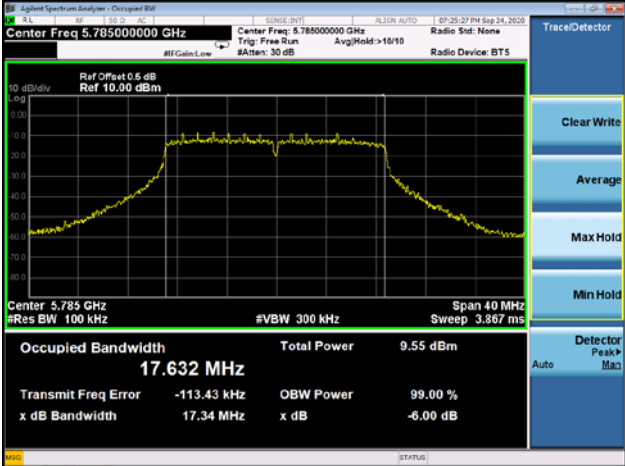
5785MHz
99% bandwidth

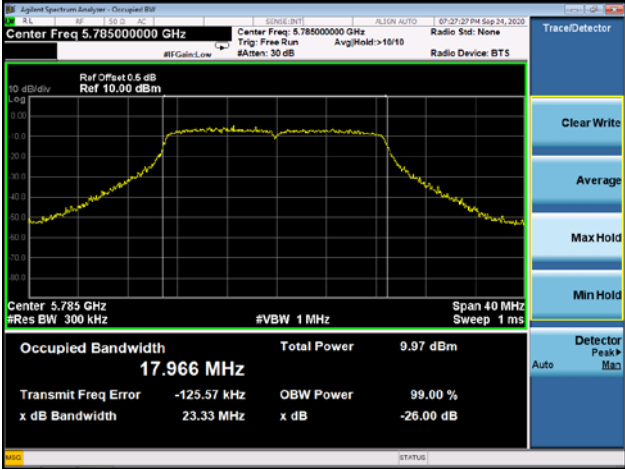
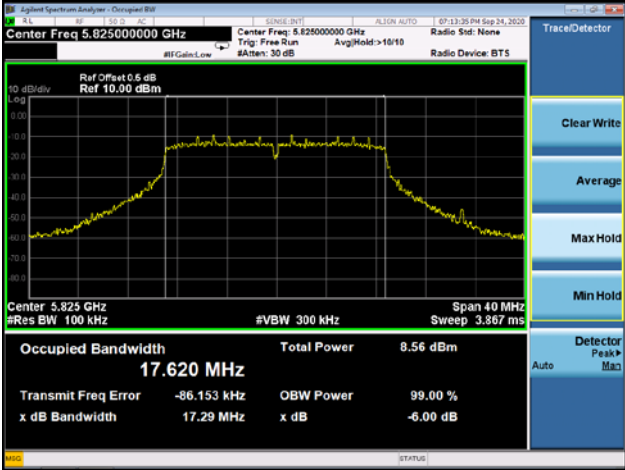
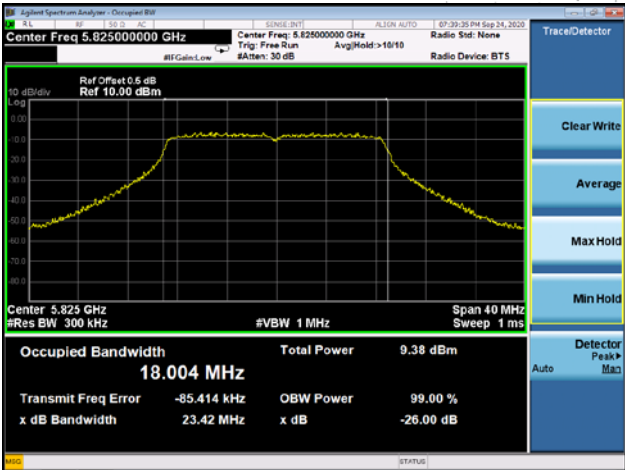


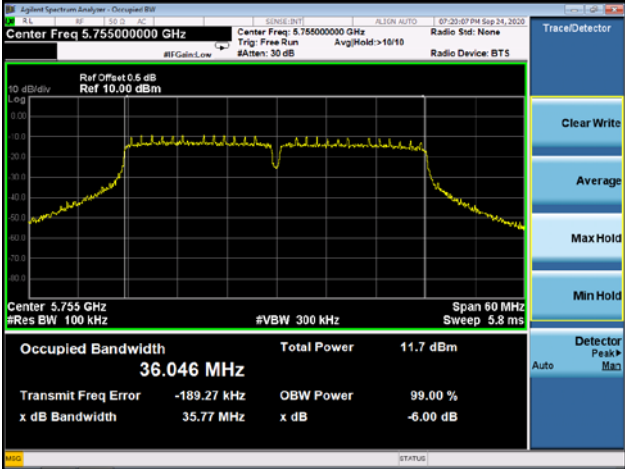
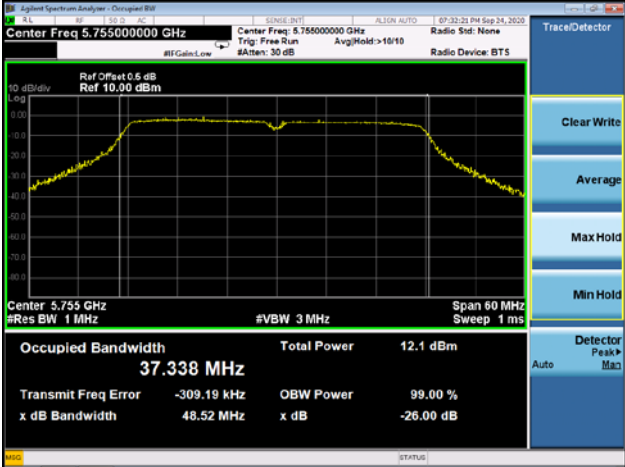
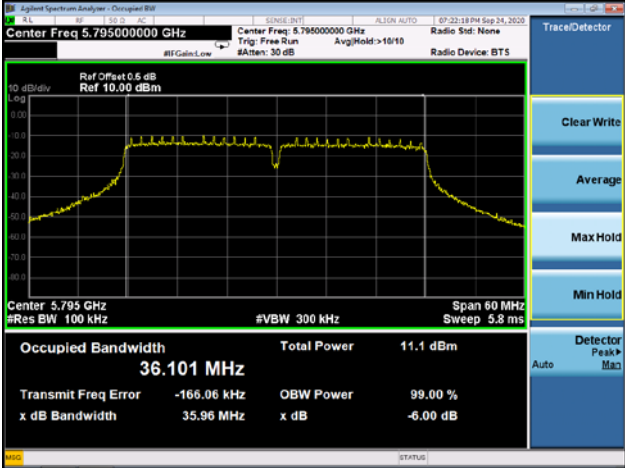
5825MHz
6dB bandwidth



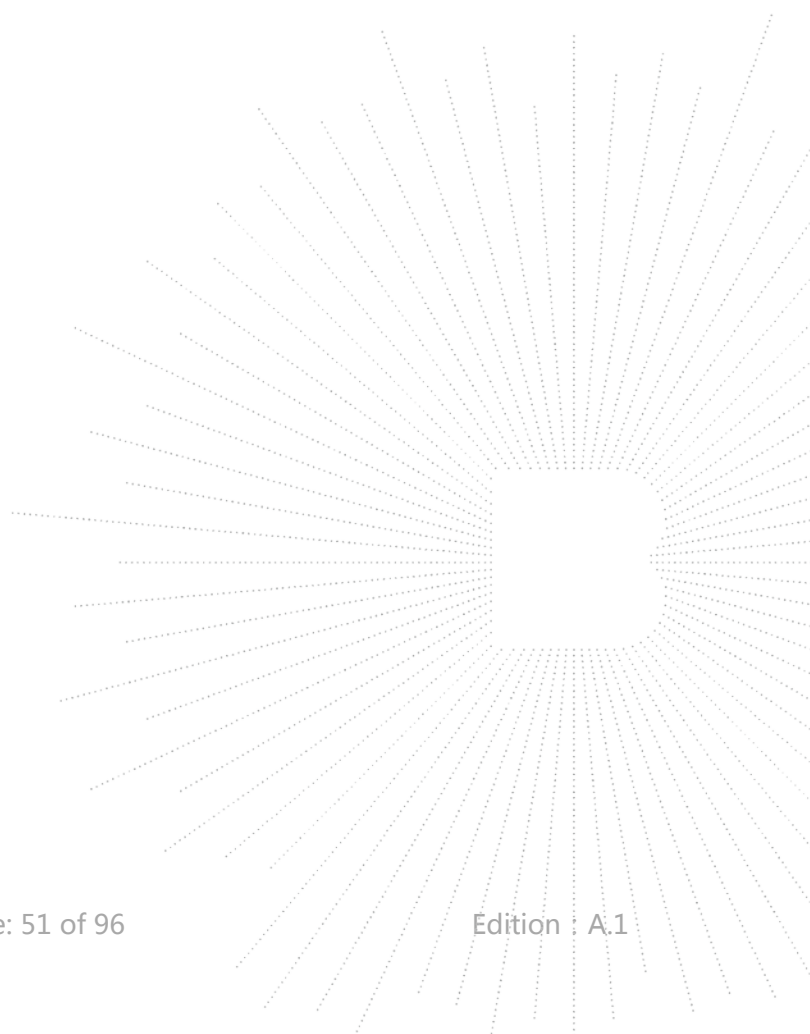
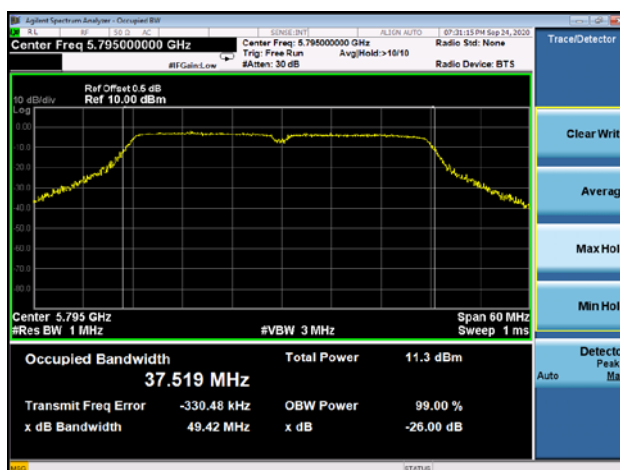


Mode:	802.11n-HT20
5745MHz 6dB bandwidth	 Center Freq 5.745000000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 3.867 ms Occupied Bandwidth 17.634 MHz Total Power 10.6 dBm Transmit Freq Error -112.70 kHz OBW Power 99.00 % x dB Bandwidth 17.34 MHz x dB -6.00 dB
5745MHz 99% bandwidth	 Center Freq 5.745000000 GHz #Res BW 300 kHz #VBW 1 MHz Sweep 1 ms Occupied Bandwidth 18.028 MHz Total Power 11.3 dBm Transmit Freq Error -115.95 kHz OBW Power 99.00 % x dB Bandwidth 23.49 MHz x dB -26.00 dB
5785MHz 6dB bandwidth	 Center Freq 5.785000000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 3.867 ms Occupied Bandwidth 17.632 MHz Total Power 9.55 dBm Transmit Freq Error -113.43 kHz OBW Power 99.00 % x dB Bandwidth 17.34 MHz x dB -6.00 dB

5785MHz 99% bandwidth	
5825MHz 6dB bandwidth	
5825MHz 99% bandwidth	

Mode:	802.11n-HT40
5755 MHz 6dB bandwidth	 Center Freq 5.75500000 GHz Ref Offset 0.5 dB Ref 10.00 dBm Center 5.755 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 36.046 MHz Total Power 11.7 dBm Transmit Freq Error -189.27 kHz OBW Power 99.00 % x dB Bandwidth 35.77 MHz x dB -6.00 dB
5755 MHz 99% bandwidth	 Center Freq 5.75500000 GHz Ref Offset 0.5 dB Ref 10.00 dBm Center 5.755 GHz #Res BW 1 MHz #VBW 3 MHz Span 60 MHz Sweep 1 ms Occupied Bandwidth 37.338 MHz Total Power 12.1 dBm Transmit Freq Error -309.19 kHz OBW Power 99.00 % x dB Bandwidth 48.52 MHz x dB -26.00 dB
5795 MHz 6dB bandwidth	 Center Freq 5.79500000 GHz Ref Offset 0.5 dB Ref 10.00 dBm Center 5.795 GHz #Res BW 100 kHz #VBW 300 kHz Span 60 MHz Sweep 5.8 ms Occupied Bandwidth 36.101 MHz Total Power 11.1 dBm Transmit Freq Error -166.06 kHz OBW Power 99.00 % x dB Bandwidth 35.96 MHz x dB -6.00 dB

5795 MHz
99% bandwidth



10. MAXIMUM CONDUCTED OUTPUT POWER

10.1 Block Diagram Of Test Setup



10.2 Limit

According to FCC §15.407

The maximum conducted output power should not exceed:

Frequency Band(MHz)	Limit
5150~5250	1W
5725~5850	1W

10.3 Test procedure

Maximum conducted output power may be measured using a spectrum analyzer/EMI receiver or an RF power meter.

1. Device Configuration

If possible, configure or modify the operation of the EUT so that it transmits continuously at its maximum power control level (see section II.B.).

a) The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (to no lower than 98 percent) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.

b) If continuous transmission (or at least 98 percent duty cycle) cannot be achieved due to hardware limitations (e.g., overheating), the EUT shall be operated at its maximum power control level with the transmit duration as long as possible and the duty cycle as high as possible.

2. Measurement using a Spectrum Analyzer or EMI Receiver (SA)

Measurement of maximum conducted output power using a spectrum analyzer requires integrating the spectrum across a frequency span that encompasses, at a minimum, either the EBW or the 99-percent occupied bandwidth of the signal.¹ However, the EBW must be used to determine bandwidth dependent limits on maximum conducted output power in accordance with § 15.407(a).

a) The test method shall be selected as follows: (i) Method SA-1 or SA-1 Alternative (averaging with the EUT transmitting at full power throughout each sweep) shall be applied if either of the following conditions can be satisfied:

- The EUT transmits continuously (or with a duty cycle ≥ 98 percent).
- Sweep triggering or gating can be implemented in a way that the device transmits at the maximum power control level throughout the duration of each of the instrument sweeps to be

averaged. This condition can generally be achieved by triggering the instrument's sweep if the duration of the sweep (with the analyzer configured as in Method SA-1, below) is equal to or shorter than the duration T of each transmission from the EUT and if those transmissions exhibit full power throughout their durations.

(ii) Method SA-2 or SA-2 Alternative (averaging across on and off times of the EUT transmissions, followed by duty cycle correction) shall be applied if the conditions of (i) cannot be achieved and the transmissions exhibit a constant duty cycle during the measurement duration. Duty cycle will be considered to be constant if variations are less than ± 2 percent.

(iii) Method SA-3 (RMS detection with max hold) or SA-3 Alternative (reduced VBW with max hold) shall be applied if the conditions of (i) and (ii) cannot be achieved.

b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep): (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW ≥ 3 MHz.

(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is $\leq$ RBW/2, so that narrowband signals are not lost between frequency bins.)

(v) Sweep time = auto.

(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

(vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".

(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.

(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum

10.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

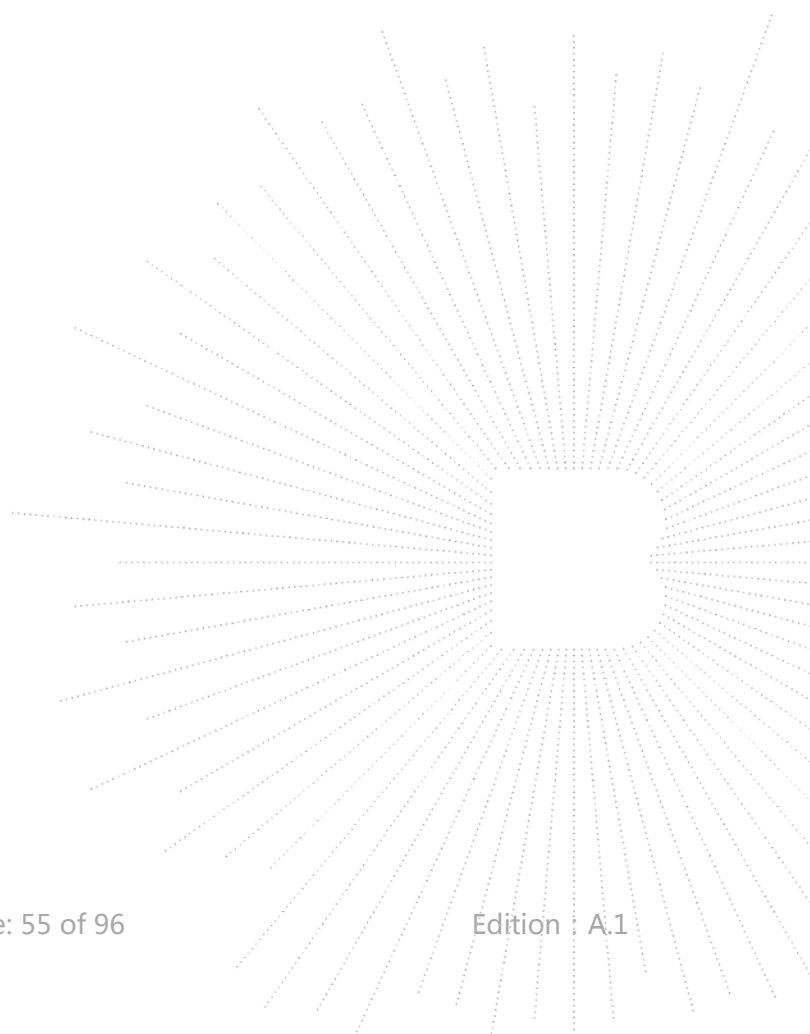
10.5 Test Result

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
Test Mode :	TX (5G) Mode Frequency U-NII-1 (5180-5240MHz)		

Test Channel	Frequency	Maximum output power. Antenna port (AV)			LIMIT	Result
	(MHz)	ANT A(dBm)	ANT B(dBm)	Total(dBm)	dBm	
TX 802.11a Mode						
CH36	5180	11.419	11.319	/	30	Pass
CH40	5200	12.039	11.729	/	30	Pass
CH48	5240	12.093	11.778	/	30	Pass
TX 802.11 n20M Mode						
CH36	5180	10.157	10.830	13.52	30	Pass
CH40	5200	10.317	10.223	13.28	30	Pass
CH48	5240	11.189	10.357	13.80	30	Pass
TX 802.11 n40M Mode						
CH38	5190	8.537	8.648	11.60	30	Pass
CH46	5230	8.888	9.174	12.04	30	Pass

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
Test Mode :	TX (5G) Mode Frequency U-NII-3 (5745-5825MHz)		

Test Channel	Frequency	Maximum output power. Antenna port (AV)			LIMIT	Result
	(MHz)	ANT A(dBm)	ANT B(dBm)	Total(dBm)	dBm	
TX 802.11a Mode						
CH 149	5745	8.102	8.941	/	30	Pass
CH 157	5785	7.855	8.054	/	30	Pass
CH 165	5825	7.023	7.124	/	30	Pass
TX 802.11 n20M Mode						
CH 149	5745	6.409	7.209	9.84	30	Pass
CH 157	5785	6.079	6.775	9.45	30	Pass
CH 165	5825	5.395	6.124	8.79	30	Pass
TX 802.11 n40M Mode						
CH 151	5755	5.180	6.162	8.71	30	Pass
CH 159	5795	4.602	5.249	7.95	30	Pass



11. OUT OF BAND EMISSIONS

11.1 Block Diagram Of Test Setup



11.2 Limit

According to FCC §15.407(b)

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

11.3 Test procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

11.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data

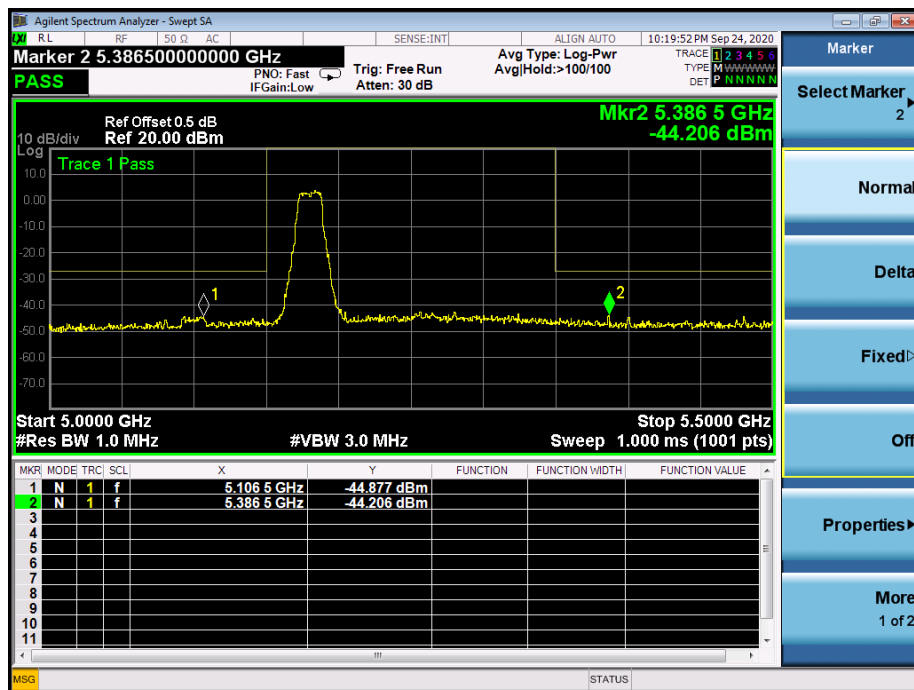
11.5 Test Result

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V

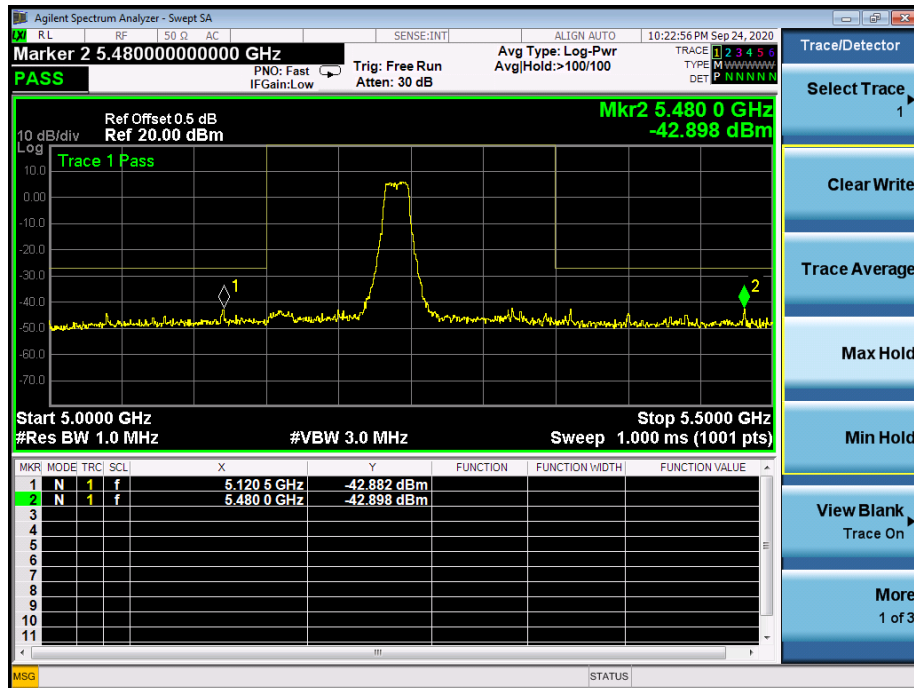
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B ,only shown Antenna B . Plot.Antenna B: 5180-5240MHz

5.180~5.240 GHz

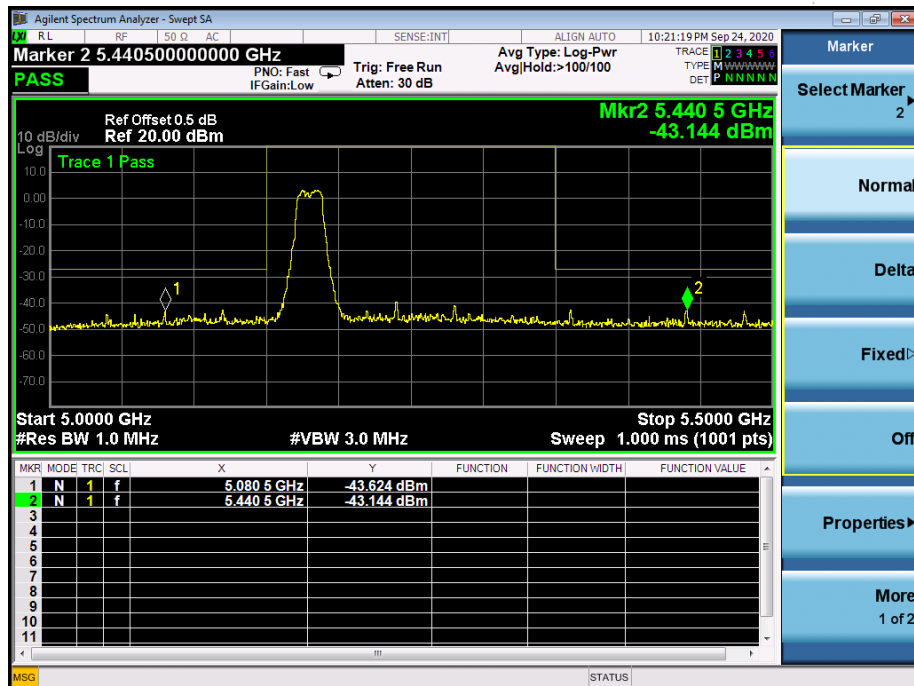
(802.11a) Band Edge, Left Side



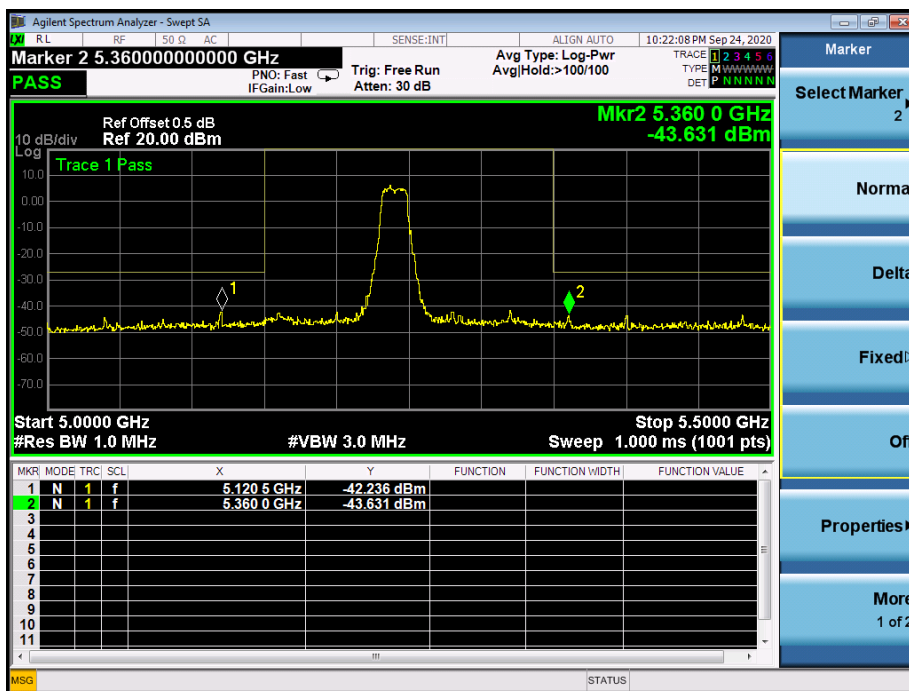
(802.11a) Band Edge, Right Side



(802.11n20) Band Edge, Left Side

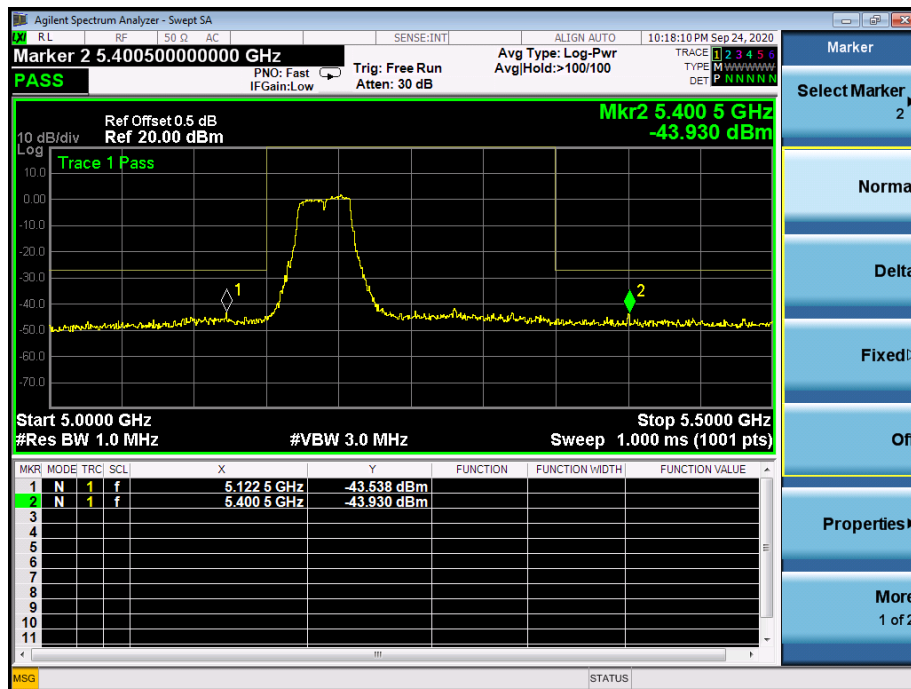


(802.11n20) Band Edge, Right Side

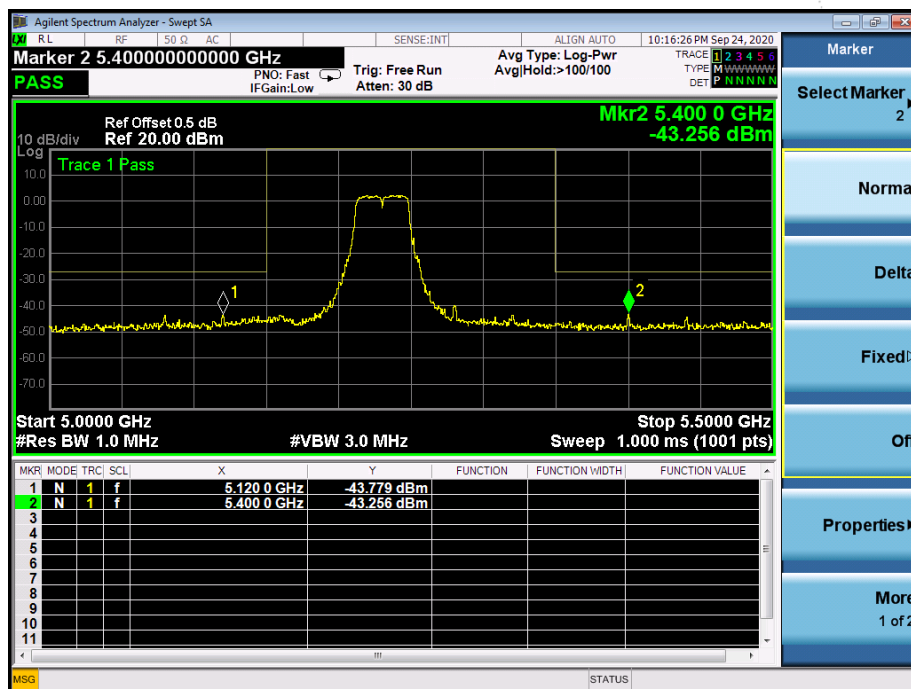


5.180~5.240 GHz

(802.11n40) Band Edge, Left Side



(802.11n40) Band Edge, Right Side

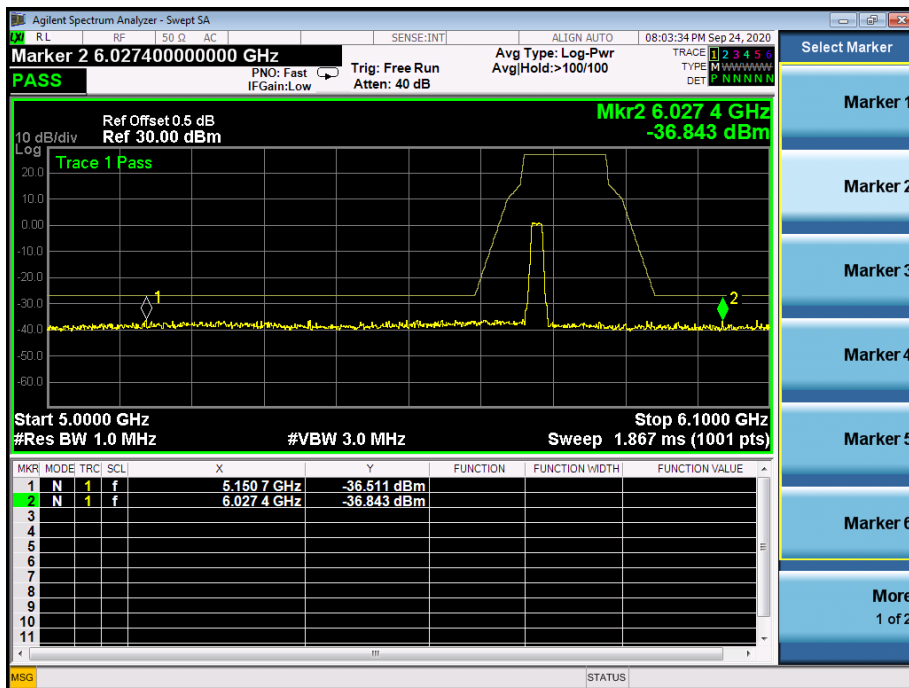


Antenna B: 5745-58250MHz

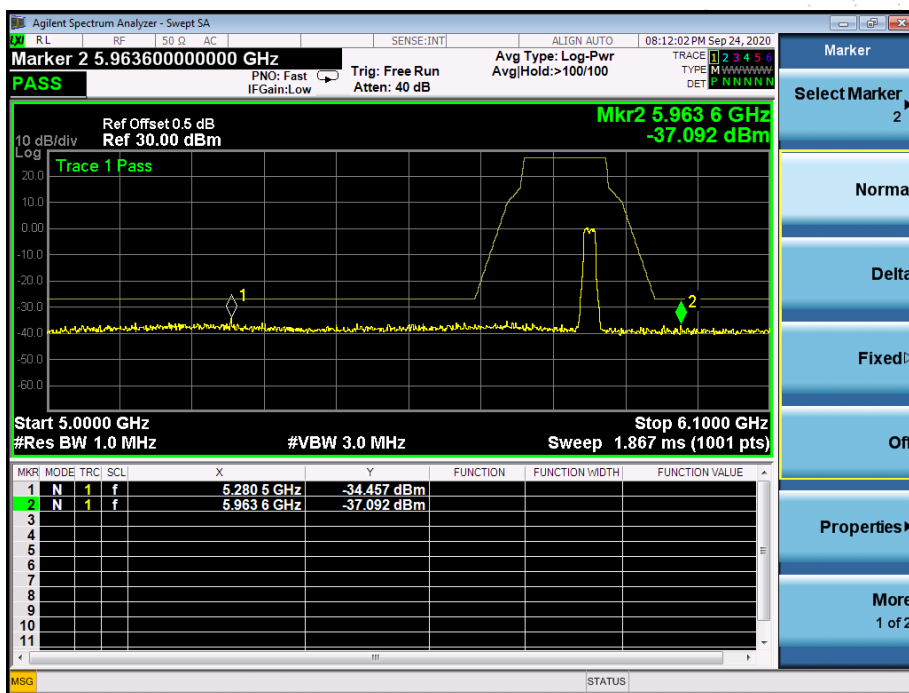
5.8G

5.745~5.825 GHz

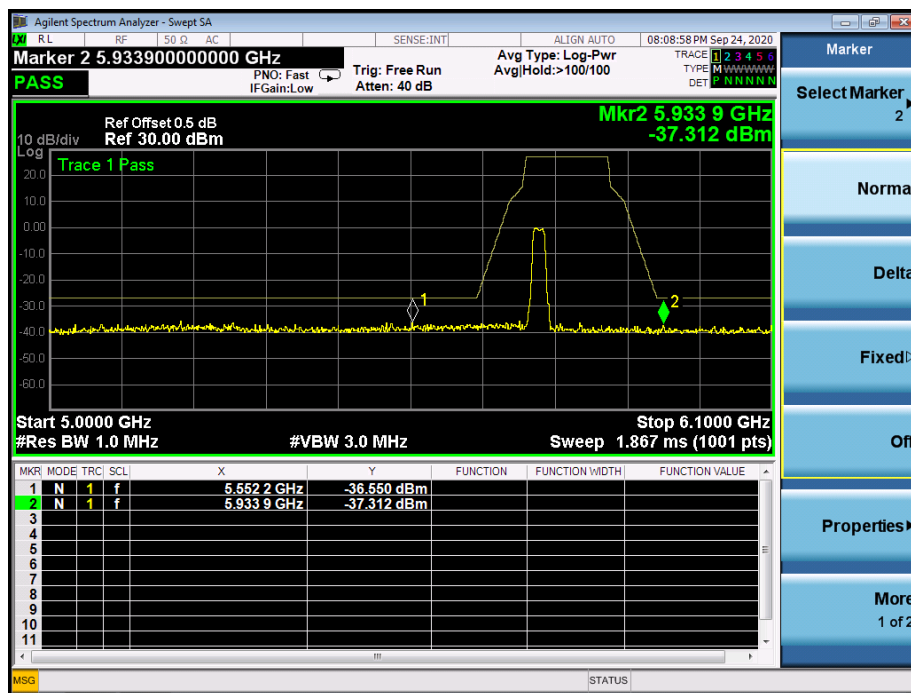
(802.11a) Band Edge, Left Side



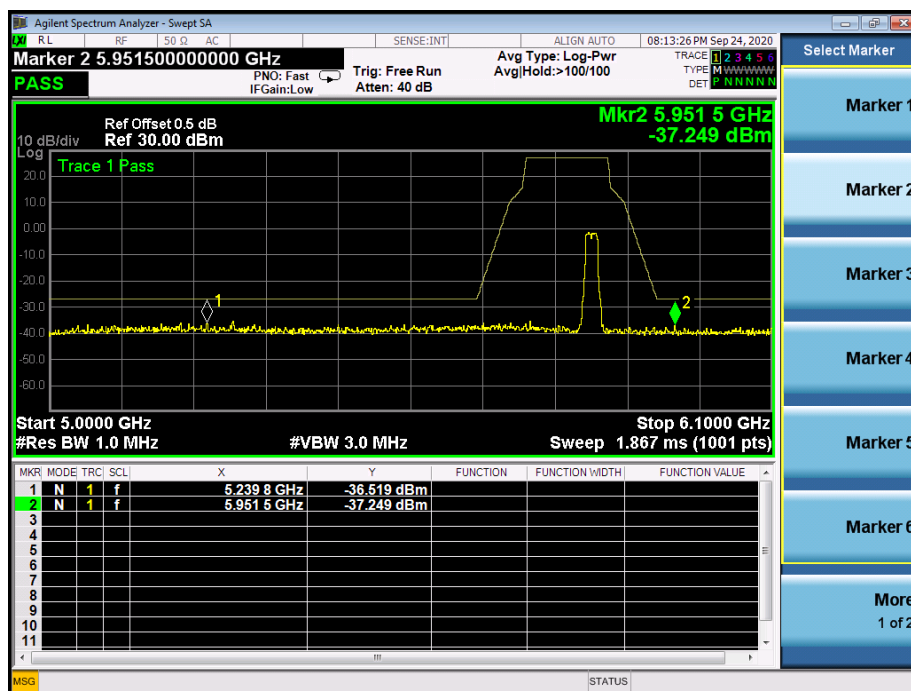
(802.11a) Band Edge, Right Side



(802.11 n20) Band Edge, Left Side

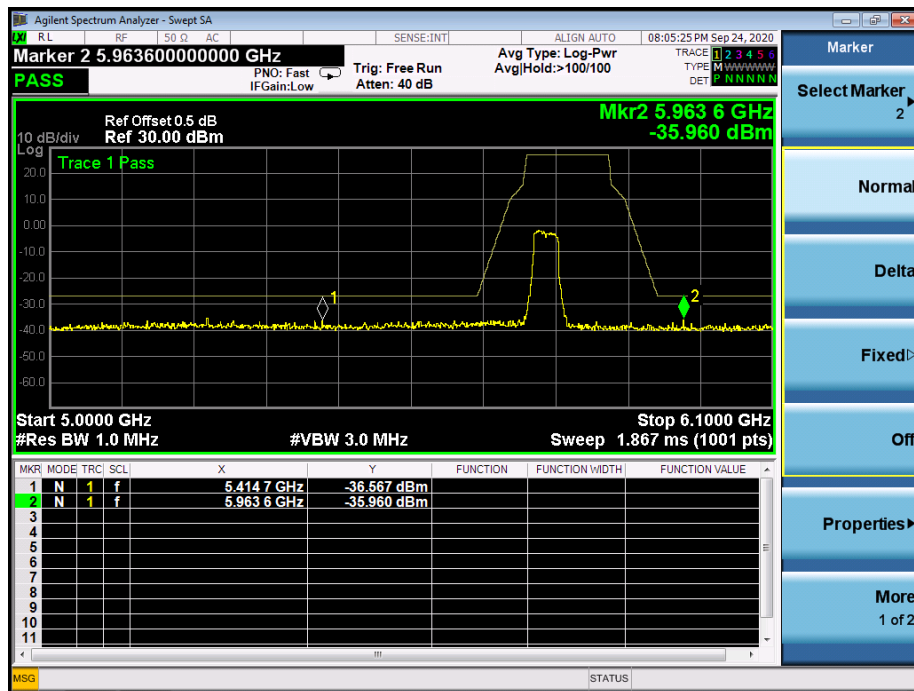


(802.11n20) Band Edge, Right Side

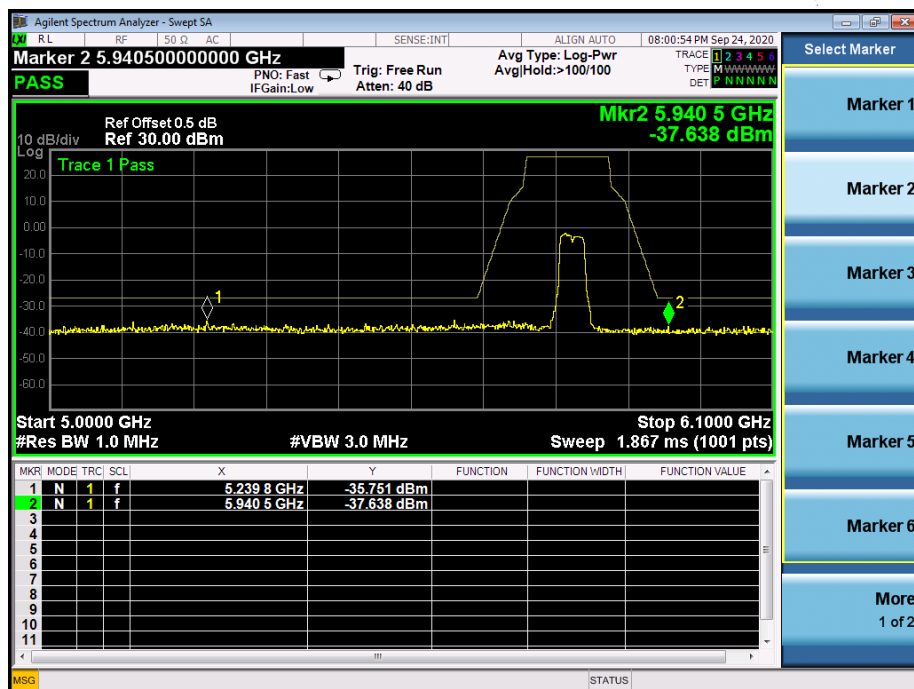


5.745~5.825 GHz

(802.11n40) Band Edge, Left Side

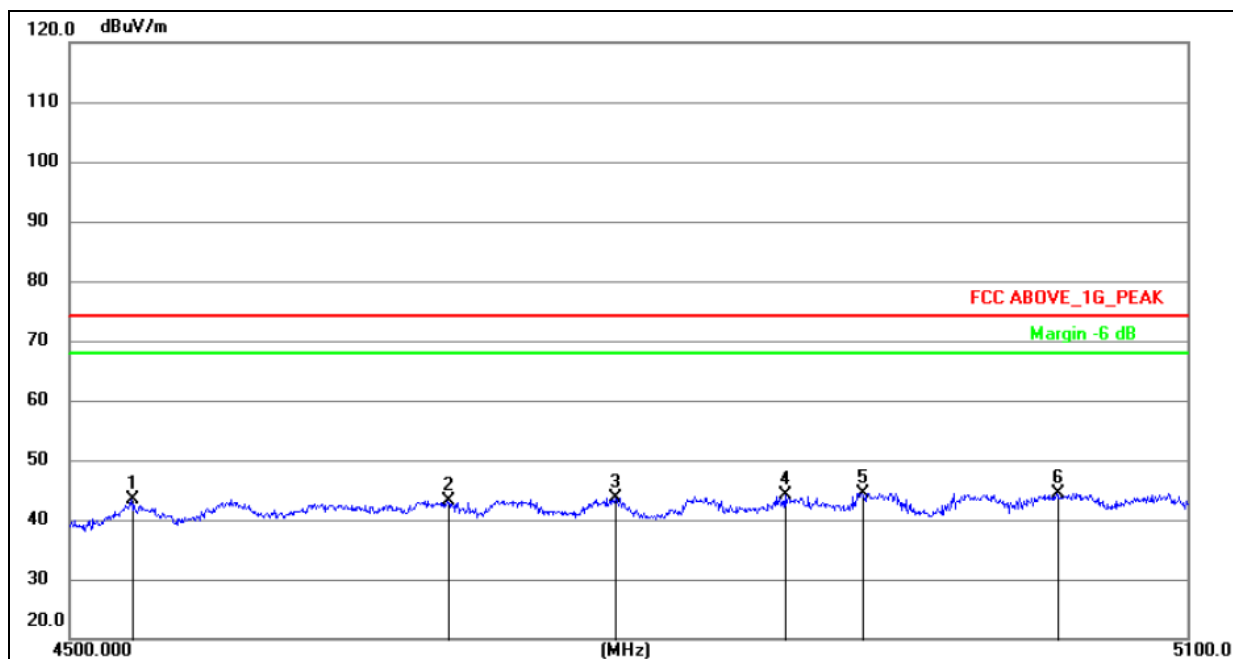


(802.11n40) Band Edge, Right Side



Radiated bandedge

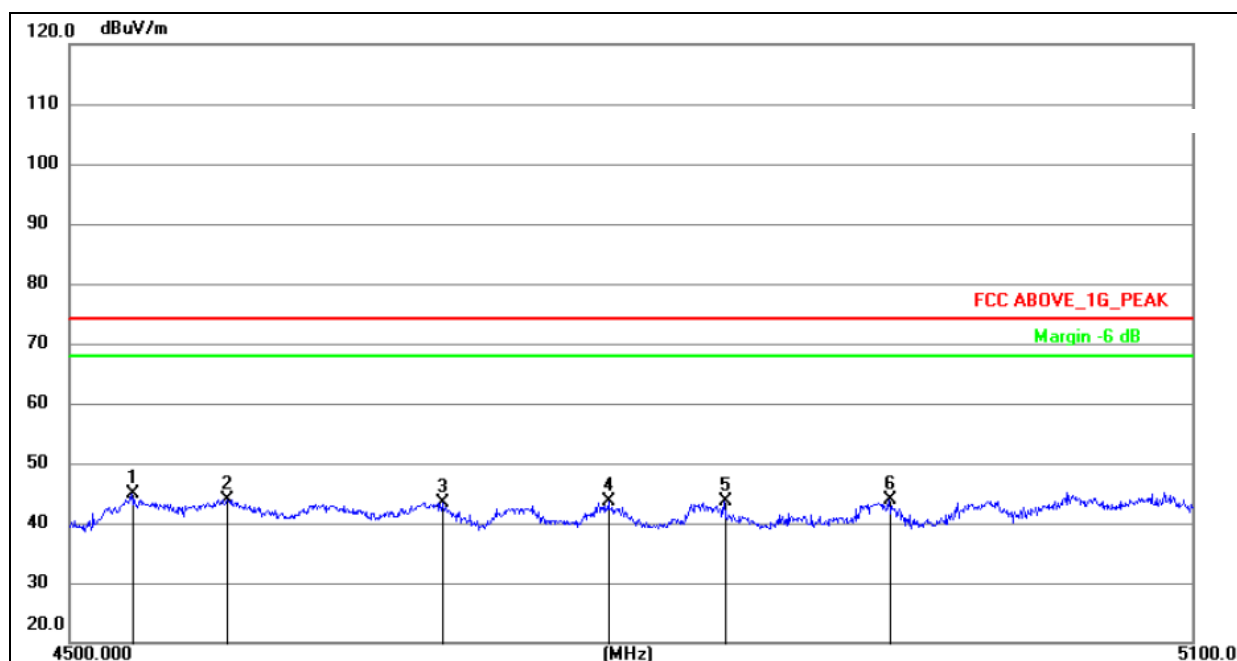
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101 kPa	Polarization :	Horizontal
Test Voltage :	DC 12V	Remark:	N/A



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq. MHz	Reading Level	Correct Factor dB	Measure- ment	Limit	Over dB	Detector
1		4531.200	43.99	-0.63	43.36	74.00	-30.64	peak
2		4695.000	43.64	-0.51	43.13	74.00	-30.87	peak
3		4783.800	44.01	-0.45	43.56	74.00	-30.44	peak
4		4875.600	44.41	-0.38	44.03	74.00	-29.97	peak
5	*	4917.600	44.71	-0.35	44.36	74.00	-29.64	peak
6		5026.200	44.54	-0.18	44.36	74.00	-29.64	peak

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101 kPa	Polarization :	Vertical
Test Voltage :	DC 12V	Remark:	N/A



Remark:

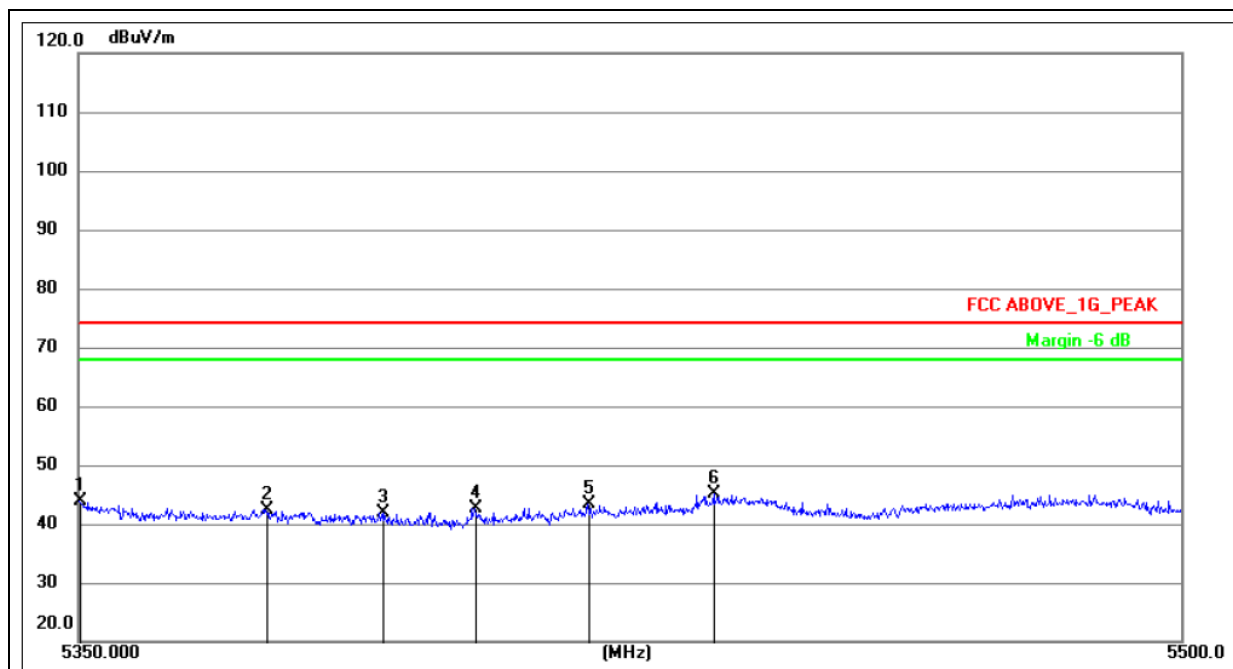
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz		dB			dB	Detector
1	*	4531.200	45.49	-0.63	44.86	74.00	-29.14	peak
2		4579.800	44.46	-0.59	43.87	74.00	-30.13	peak
3		4691.400	43.86	-0.51	43.35	74.00	-30.65	peak
4		4779.000	43.96	-0.45	43.51	74.00	-30.49	peak
5		4840.800	44.03	-0.40	43.63	74.00	-30.37	peak
6		4930.800	44.17	-0.34	43.83	74.00	-30.17	peak

Note:

1. This EUT was tested in 802.11a/n(HT20),n(HT40),ac(HT20), ac(HT40), ac(HT80) mode and 802.11a Antenna A the worst case position data was reported.

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101 kPa	Polarization :	Horizontal
Test Voltage :	DC 12V	Remark:	N/A



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.150	42.70	1.20	43.90	74.00	-30.10	peak
2	5375.350	41.08	1.31	42.39	74.00	-31.61	peak
3	5391.100	40.45	1.37	41.82	74.00	-32.18	peak
4	5403.400	41.24	1.42	42.66	74.00	-31.34	peak
5	5418.850	41.94	1.49	43.43	74.00	-30.57	peak
6	5435.950	43.46	1.56	45.02	74.00	-28.98	peak